

=> fil cap

FILE 'CAPLUS' ENTERED AT 16:49:29 ON 11 OCT 2007

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2007 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 11 Oct 2007 VOL 147 ISS 16

FILE LAST UPDATED: 10 Oct 2007 (20071010/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply. They are available for your review at:

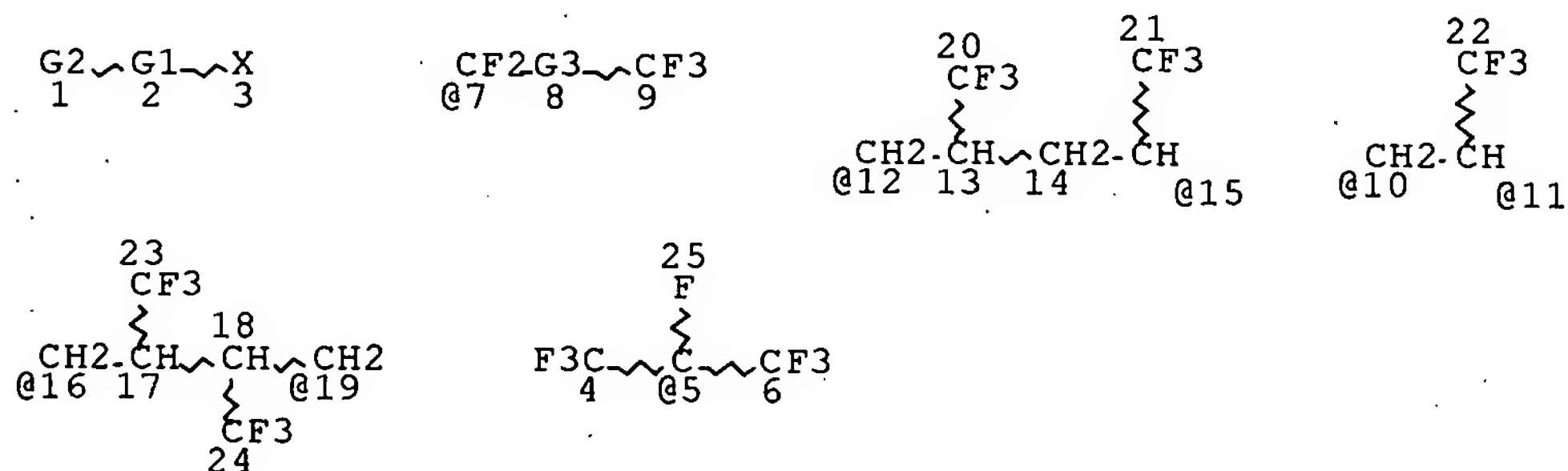
<http://www.cas.org/infopolicy.html>

=> s 17 and 117

L18 0 L7 AND L17

=> d que 17

L1 STR



VAR G1=12-1 15-3/12-3 15-1/10-1 11-3/11-1 10-3/16-1 19-3

VAR G2=5/7

REP G3=(0-10) CF2

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

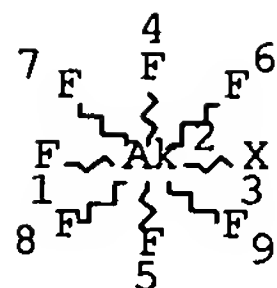
GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 25

STEREO ATTRIBUTES: NONE

L3 STR



## NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

## GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 9

## STEREO ATTRIBUTES: NONE

L4 93925 SEA FILE=REGISTRY SSS FUL L3

L6 10 SEA FILE=REGISTRY SUB=L4 SSS FUL L1

L7 18 SEA FILE=CAPLUS ABB=ON PLU=ON L6

=&gt; d l7 ibib abs hitstr tot

L7 ANSWER 1 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:970014 CAPLUS Full-text

DOCUMENT NUMBER: 147:303543

TITLE: Azeotropic compositions comprising fluorinated compounds for cleaning applications

INVENTOR(S): Schweitzer, Melodie A.; Sievert, Allen Capron; Bartelt, Joan Ellen; Minor, Barbara Haviland

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 11pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2007203045	A1	20070830	US 2007-712165	20070228
US 2007203046	A1	20070830	US 2007-712453	20070228
WO 2007100885	A2	20070907	WO 2007-US5242	20070228
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
WO 2007100886	A2	20070907	WO 2007-US5243	20070228
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,				

GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN,  
 KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK,  
 MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO,  
 RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT,  
 TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW  
 RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
 IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,  
 CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,  
 GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,  
 KG, KZ, MD, RU, TJ, TM

WO 2007100887 A2 20070907 WO 2007-US5244 20070228  
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,  
 CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,  
 GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN,  
 KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK,  
 MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO,  
 RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT,  
 TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW  
 RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
 IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,  
 CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,  
 GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,  
 KG, KZ, MD, RU, TJ, TM

## PRIORITY APPLN. INFO.:

US 2006-777350P P 20060228

AB Compns. comprising fluorinated olefins or fluorinated ketones, and at least one alc., halocarbon, hydrofluorocarbon, or fluoroether are azeotropic or azeotrope-like and thus useful in cleaning applications as a degreasing agent or defluxing agent for removing oils and/or other residues from a surface, e.g., from circuit boards.

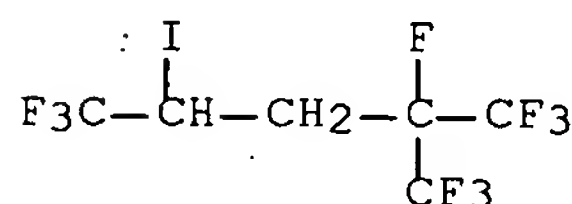
IT 922523-98-6P 935553-88-1P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(azeotropic compns. comprising fluorinated compds. for cleaning applications)

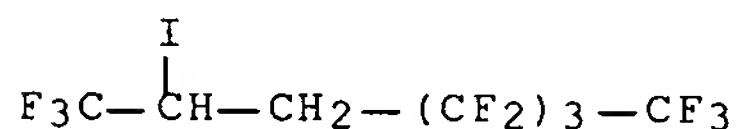
RN 922523-98-6 CAPLUS

CN Pentane, 1,1,1,2,5,5,5-heptafluoro-4-iodo-2-(trifluoromethyl)- (CA INDEX NAME)



RN 935553-88-1 CAPLUS

CN Heptane, 1,1,1,2,2,3,3,4,4,7,7,7-dodecafluoro-6-iodo- (CA INDEX NAME)



ACCESSION NUMBER: 2007:488744 CAPLUS Full-text  
 DOCUMENT NUMBER: 146:482943  
 TITLE: Blowing agents containing unsaturated fluorocarbons  
 for manufacturing plastic foam  
 INVENTOR(S): Creazzo, Joseph Anthony; Nappa, Mario Joseph; Sievert,  
 Allen Capron; Swearingen, Ekaterina N.  
 PATENT ASSIGNEE(S): USA  
 SOURCE: U.S. Pat. Appl. Publ., 19pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2007100010	A1	20070503	US 2006-591350	20061101
US 2007100009	A1	20070503	US 2006-591349	20061101
US 2007100011	A1	20070503	US 2006-591400	20061101
US 2007102021	A1	20070510	US 2006-591401	20061101
US 2007105738	A1	20070510	US 2006-591650	20061101
WO 2007053670	A2	20070510	WO 2006-US42623	20061101
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
WO 2007053672	A2	20070510	WO 2006-US42633	20061101
WO 2007053672	A3	20070628		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA				
WO 2007053673	A2	20070510	WO 2006-US42634	20061101
WO 2007053673	A3	20070705		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,				

GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,  
 KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA

WO 2007053674 A2 20070510 WO 2006-US42635 20061101

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,  
 CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,  
 GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN,  
 KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK,  
 MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO,  
 RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT,  
 TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
 IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,  
 CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,  
 GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,  
 KG, KZ, MD, RU, TJ, TM

WO 2007053675 A2 20070510 WO 2006-US42636 20061101

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,  
 CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,  
 GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN,  
 KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK,  
 MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO,  
 RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT,  
 TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
 IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,  
 CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,  
 GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,  
 KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.:

US 2005-732090P P 20051101  
 US 2005-732771P P 20051101

OTHER SOURCE(S): MARPAT 146:482943

AB The blowing agent, useful in foamable composition, comprises a unsatd.  
 fluorocarbon and/or unsatd. hydrofluorocarbon. Also disclosed are methods for  
 forming a foam comprising the aforementioned blowing agents.

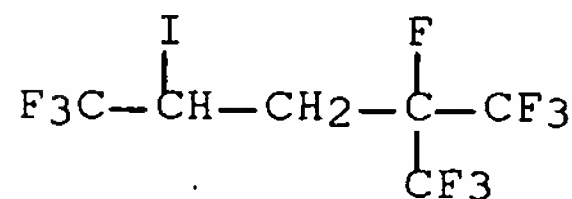
IT 922523-98-6P 935553-88-1P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT  
 (Reactant or reagent)

(blowing agents containing unsatd. fluorocarbons for manufacturing plastic  
 foam)

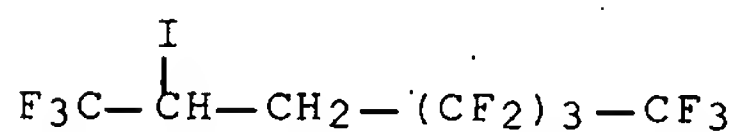
RN 922523-98-6 CAPLUS

CN Pentane, 1,1,1,2,5,5,5-heptafluoro-4-iodo-2-(trifluoromethyl)- (CA INDEX  
 NAME)



RN 935553-88-1 CAPLUS

CN Heptane, 1,1,1,2,2,3,3,4,4,7,7,7-dodecafluoro-6-iodo- (CA INDEX NAME)



L7 ANSWER 3 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2007:484984 CAPLUS Full-text  
 DOCUMENT NUMBER: 146:484033  
 TITLE: Fire extinguishing and fire suppression compositions  
 comprising unsaturated fluorocarbons  
 INVENTOR(S): Nappa, Mario Joseph; Swearingen, Ekaterina N.;  
 Sievert, Allen Capron  
 PATENT ASSIGNEE(S): USA  
 SOURCE: U.S. Pat. Appl. Publ., 11pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2007096051	A1	20070503	US 2006-590453	20061031
WO 2007053737	A2	20070510	WO 2006-US42772	20061101
WO 2007053737	A3	20070614		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,  
 CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,  
 GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN,  
 KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK,  
 MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO,  
 RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT,  
 TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW  
 RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
 IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,  
 CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,  
 GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,  
 KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA

PRIORITY APPLN. INFO.: US 2005-732396P P 20051101

OTHER SOURCE(S): MARPAT 146:484033

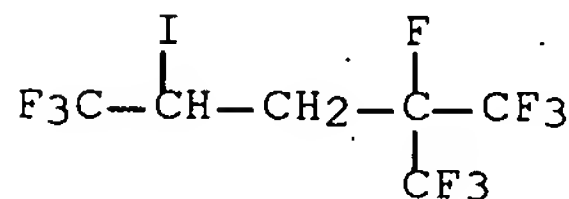
AB Fire extinguishing and flame suppression compds., are trans (E) or cis (Z) hydrofluoroalkenes, with formula R1CH=CHR2, in which R1 and R2 are C1-6-perfluoroalkyl groups (e.g., CF3, C2F5, (1- and 2-)-C3F7, all isomeric C4F9, - (CF2)4CF3, -CF2CF2CF(CF3)2, -C(CF3)2C2F5, and -(CF2)5CF3).

IT 922523-98-6P 935553-88-1P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (synthesis and dehydroiodination of; hydrofluoroalkenes as candidate fire extinguishing and flame suppression agents)

RN 922523-98-6 CAPLUS

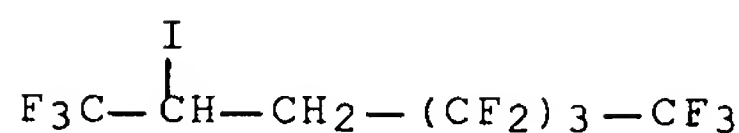
CN Pentane, 1,1,1,2,5,5,5-heptafluoro-4-iodo-2-(trifluoromethyl)- (CA INDEX NAME)





RN 935553-88-1 CAPLUS

CN Heptane, 1,1,1,2,2,3,3,4,4,7,7,7-dodecafluoro-6-iodo- (CA INDEX NAME)



L7 ANSWER 4 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:119612 CAPLUS Full-text

DOCUMENT NUMBER: 146:206831

TITLE: Preparation of halogenated telomers

INVENTOR(S): Brandstadter, Stephan; Ameduri, Bruno; Kostov, George K.

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 7pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2007027349	A1	20070201	US 2005-192832	20050728
WO 2007016359	A2	20070208	WO 2006-US29459	20060728
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
US 2007197769	A1	20070823	US 2007-784446	20070405
US 2007197840	A1	20070823	US 2007-784447	20070405
PRIORITY APPLN. INFO.:			US 2005-192832	A 20050728
			US 2005-704168P	P 20050729

OTHER SOURCE(S): MARPAT 146:206831

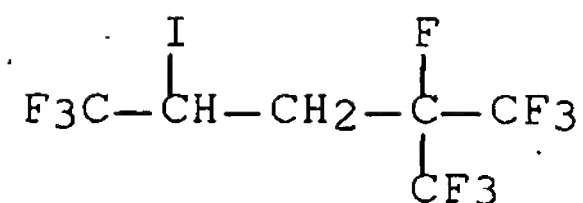
AB A halogenated composition comprises RF(RT)nQ, wherein: the RF group comprises  $\geq 2$  fluorine atoms, the RT group comprises  $\geq 1$  C-2 group, the C-2 group comprising a -CF<sub>2</sub>- group and  $\geq 1$  pendant -CF<sub>3</sub> group, n is  $\geq 1$ , and the Q group comprises  $\geq 1$  atom of the periodic table of elements.

IT 922523-98-6P 922523-99-7P 922524-02-5P  
922524-03-6P

RL: IMF (Industrial manufacture); PREP (Preparation)  
(preparation of halogenated telomers)

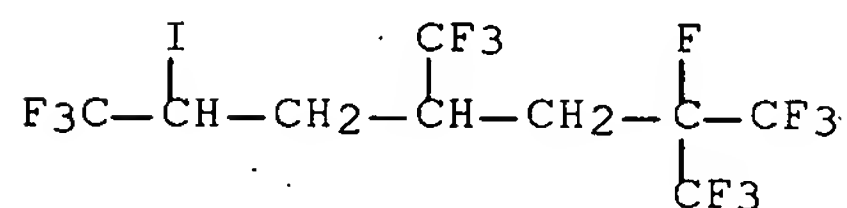
RN 922523-98-6 CAPLUS

CN Pentane, 1,1,1,2,5,5,5-heptafluoro-4-iodo-2-(trifluoromethyl)- (CA INDEX NAME)



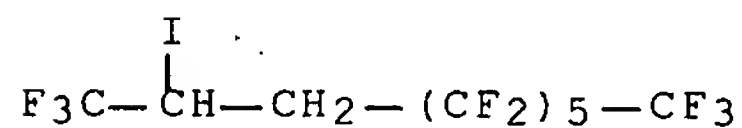
RN 922523-99-7 CAPLUS

CN Heptane, 1,1,1,2,7,7,7-heptafluoro-6-iodo-2,4-bis(trifluoromethyl)- (CA INDEX NAME)



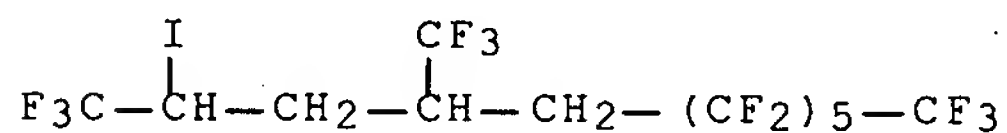
RN 922524-02-5 CAPLUS

CN Nonane, 1,1,1,2,2,3,3,4,4,5,5,6,6,9,9,9-hexadecafluoro-8-iodo- (CA INDEX NAME)



RN 922524-03-6 CAPLUS

CN Undecane, 1,1,1,2,2,3,3,4,4,5,5,6,6,11,11,11-hexadecafluoro-10-iodo-8-(trifluoromethyl)- (CA INDEX NAME)



L7 ANSWER 5 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:469480 CAPLUS Full-text

DOCUMENT NUMBER: 144:490632

TITLE: Processes for production and purification of hydrofluoroolefins

INVENTOR(S): Miller, Ralph Newton; Nappa, Mario Joseph; Rao, Velliyur Nott Mallikarjuna; Sievert, Allen Capron

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 27 pp., Cont.-in-part of U.S. Ser. No. 259,901.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:



PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2006106263	A1	20060518	US 2005-264183	20051101
US 2006094911	A1	20060504	US 2005-259901	20051027
EP 1805124	A2	20070711	EP 2005-819557	20051028
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU				
WO 2007053178	A1	20070510	WO 2006-US13361	20060411
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				

PRIORITY APPLN. INFO.:

US 2004-623210P	P	20041029
US 2005-259901	A2	20051027
WO 2005-US39169	W	20051028
US 2005-264183	A	20051101

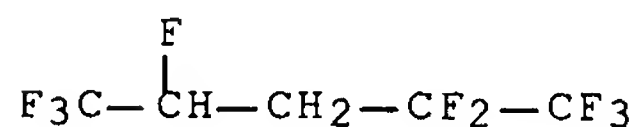
OTHER SOURCE(S): CASREACT 144:490632

AB Hydrofluoroolefins are produced by dehydrofluorination of hydrofluorocarbons containing  $\geq 1$  H and  $\geq 1$  F on adjacent carbons, with the product mixture containing  $\geq 1$  of the hydrofluoroolefin and unreacted hydrofluorocarbon as an azeotrope with HF. The product mixts. are separated by distilling off the azeotropic or near-azeotropic mixture containing HF and hydrofluoroolefins and distilling this mixture in 2 steps at different pressures to sep. the components.

IT 141993-32-0, 1,1,1,2,4,4,5,5,5-Nonafluoropentane  
 142347-13-5, 1,1,1,2,2,3,3,5,6,6,6-Undecafluorohexane  
 142347-15-7, 1,1,1,2,2,3,3,4,4,6,7,7,7-Tridecafluoroheptane  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (production and purification of hydrofluoroolefins from dehydrofluorination of hydrofluorocarbons with azeotropic distillation)

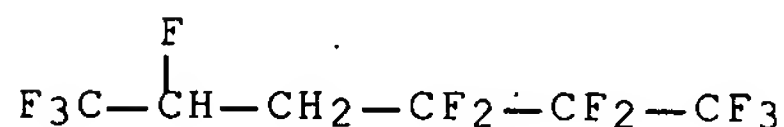
RN 141993-32-0 CAPLUS

CN Pentane, 1,1,1,2,2,4,5,5,5-nonafluoro- (9CI) (CA INDEX NAME)

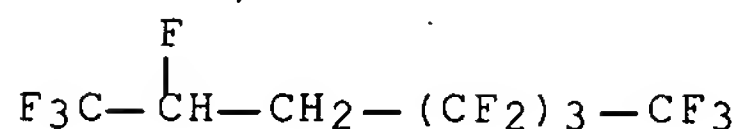


RN 142347-13-5 CAPLUS

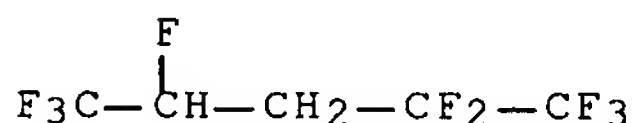
CN Hexane, 1,1,1,2,2,3,3,5,6,6,6-undecafluoro- (9CI) (CA INDEX NAME)



RN 142347-15-7 CAPLUS  
 CN Heptane, 1,1,1,2,2,3,3,4,4,6,7,7,7-tridecafluoro- (9CI) (CA INDEX NAME)



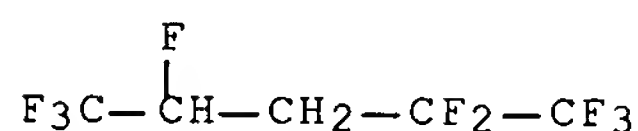
L7 ANSWER 6 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2004:434480 CAPLUS Full-text  
 DOCUMENT NUMBER: 141:156797  
 TITLE: 19F and 1H NMR spectra of halocarbons  
 AUTHOR(S): Foris, Anthony  
 CORPORATE SOURCE: Central Research & Development, Corporate Center for  
 Analytical Science, DuPont, Wilmington, DE, 19880, USA  
 SOURCE: Magnetic Resonance in Chemistry (2004), 42(6), 534-555  
 CODEN: MRCHEG; ISSN: 0749-1581  
 PUBLISHER: John Wiley & Sons Ltd.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB 19F NMR chemical shifts and coupling consts. are reported for 215 compds. For  
 77 of these compds., 1H NMR spectral data are also given. Long-range  
 couplings, including 8J(F,F) and 5J(F,H), are reported. The complexity of  
 halocarbon spectra owing to the presence of rotational isomers, asym. centers,  
 long-range couplings, and chlorine isotope effects are illustrated, and the  
 methods used for analyzing such complex spectra are briefly discussed.  
 IT 141993-32-0  
 RL: PRP (Properties)  
 (proton and fluorine-19 NMR spectra of halocarbons)  
 RN 141993-32-0 CAPLUS  
 CN Pentane, 1,1,1,2,2,4,5,5,5-nonafluoro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 75 THERE ARE 75 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 7 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1999:640804 CAPLUS Full-text  
 DOCUMENT NUMBER: 131:273393  
 TITLE: Method for producing fluorinated saturated  
 hydrocarbons  
 INVENTOR(S): Yamada, Toshiro; Sugimoto, Tatsuya; Sugawara, Mitsuru  
 PATENT ASSIGNEE(S): Nippon Zeon Co., Ltd., Japan  
 SOURCE: PCT Int. Appl., 26 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9950209	A1	19991007	WO 1999-JP1468	19990324
W: CN, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
JP 11286462	A	19991019	JP 1998-104145	19980331
PRIORITY APPLN. INFO.:			JP 1998-104145	A 19980331
AB	A fluorinated saturated hydrocarbon having a CH <sub>2</sub> -CHF bond is produced (a) by providing a mixture of a fluorinated saturated hydrocarbon having a CHF-CHF bond and a fluorinated saturated having a CH <sub>2</sub> -CHF bond as a feed stock, selectively dehydrofluorinating the fluorinated saturated hydrocarbon having a CHF-CHF bond in the stock and removing a fluorinated unsatd. hydrocarbon having a CHF=CF bond from the resulting reaction mixture by distillation, or, (b) by providing, as the above-mentioned stock, a mixture of the fluorinated hydrocarbons which have the same structure with respect to the moieties other than CHF-CHF and CH <sub>2</sub> -CHF bonds, carrying out a dehydrofluorination in a way similar to (a), and hydrogenating the resulting reaction product without separating a fluorinating saturated hydrocarbon having a CH <sub>2</sub> -CHF bond remaining unreacted in the reaction product.			
IT	141993-32-0P			
	RL: IMF (Industrial manufacture); PREP (Preparation)			
	(production of fluorinated saturated hydrocarbons by dehydrofluorination and hydrogenation)			
RN	141993-32-0 CAPLUS			
CN	Pentane, 1,1,1,2,2,4,5,5,5-nonafluoro- (9CI) (CA INDEX NAME)			



REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 8 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1998:761865 CAPLUS Full-text  
 DOCUMENT NUMBER: 130:15170  
 TITLE: Fluorinated hydrocarbons, detergents, deterging method, polymer-containing fluids, and method of forming polymer films  
 INVENTOR(S): Yamada, Toshiro; Goto, Kuniaki; Sugimoto, Tatsuya  
 PATENT ASSIGNEE(S): Nippon Zeon Co., Ltd., Japan  
 SOURCE: PCT Int. Appl., 81 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9851651	A1	19981119	WO 1998-JP2158	19980515
W: KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				

JP 10316598	A	19981202	JP 1997-127591	19970516
JP 10316760	A	19981202	JP 1997-145891	19970520
EP 994089	A1	20000419	EP 1998-919622	19980515
R: DE, FR, GB				
TW 460439	B	20011021	TW 1998-87107603	19980516
US 6312759	B1	20011106	US 2000-423899	20000413
PRIORITY APPLN. INFO.:			JP 1997-127591	A 19970516
			JP 1997-145891	A 19970520
			WO 1998-JP2158	W 19980515

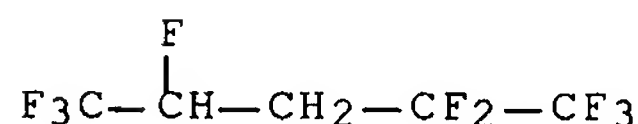
OTHER SOURCE(S): MARPAT 130:15170

AB Incombustible fluorinated hydrocarbons, having excellent detergency and stabilities to alkalis, water and heat, contain ≥95% of trihydrofluorocarbons Rf1-R1-Rf2 (R1 = carbon chain composed of CHF and CH2; Rf1, Rf2 = perfluoroalkyl, or Rf1 and Rf2 are bonded together to form a ring). Polymer-containing fluids are obtained by dissolving or dispersing a film-forming polymer, preferably a fluoropolymer in a solvent containing a trihydrofluorocarbon.

IT 141993-32-0P, Pentane, 1,1,1,2,2,4,5,5,5-nonafluoro-  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (fluorinated saturated hydrocarbon compns. as detergents and solvents for forming polymer films)

RN 141993-32-0 CAPLUS

CN Pentane, 1,1,1,2,2,4,5,5,5-nonafluoro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 9 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1998:761864 CAPLUS Full-text

DOCUMENT NUMBER: 130:3604

TITLE: Preparation of fluorinated, saturated hydrocarbons as detergents and solvents

INVENTOR(S): Sekiya, Akira; Yamada, Toshirou; Uruma, Takashi; Sugimoto, Tatsuya

PATENT ASSIGNEE(S): Japan, Agency of Industrial Science and Technology, Japan; Nippon Zeon Co., Ltd.

SOURCE: PCT Int. Appl., 44 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9851650	A1	19981119	WO 1998-JP2157	19980515
W: KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
JP 10316597	A	19981202	JP 1997-125906	19970515
EP 982281	A1	20000301	EP 1998-919621	19980515
R: DE, FR, GB				

US 6403846 B1 20020611 US 2000-423747 20000203  
 PRIORITY APPLN. INFO.: JP 1997-125906 A 19970515  
 WO 1998-JP2157 W 19980515

OTHER SOURCE(S): MARPAT 130:3604

AB This document discloses compns. comprising linear or cyclic fluorinated, saturated hydrocarbons of the following general formulas Rf1R1Rf2 (I) and Rf1R2Rf2 (II). For said hydrocarbons, R1 is a carbon chain composed of CHF and CH2; Rf1 and Rf2 are each perfluoroalkyl, fluorine or hydrogen with the proviso that at least one of them is perfluoroalkyl, or Rf1 and Rf2 are bonded together to form a ring containing a perfluoroalkylene chain; and R2 is a carbon chain composed of CH2 and CH2, with the proviso that the skeletons of the compds. of the formulas I and II are the same. Each composition comprises more than 10 mol % and less than 95 mol % of a compound of the general formula I and the balance of a compound of the general formula II. These compns. have an excellent chemical stability and a high safety for the living bodies, do not deplete the ozonosphere, and are useful as detergents, solvents, etc. A mixture of heptafluorocyclopentane: hexafluorocyclopentane (60:40 mol ratio) (80 weight%) and ethanol (20 weight%) showed excellent detergent power.

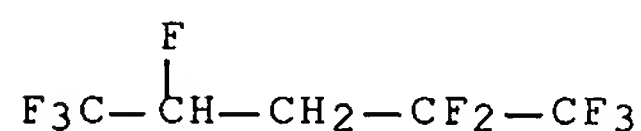
IT 141993-32-0P

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of fluorinated, saturated hydrocarbons as detergents and solvents)

RN 141993-32-0 CAPLUS

CN Pentane, 1,1,1,2,2,4,5,5,5-nonafluoro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 10 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1998:761863 CAPLUS Full-text

DOCUMENT NUMBER: 130:15169

TITLE: Fluorinated saturated hydrocarbons, compositions thereof, polymer-containing fluid, and method of forming polymer films

INVENTOR(S): Yamada, Toshirou; Uruma, Takashi; Goto, Kuniaki

PATENT ASSIGNEE(S): Nippon Zeon Co., Ltd., Japan

SOURCE: PCT Int. Appl., 55 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9851649	A1	19981119	WO 1998-JP2156	19980515
W: KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
JP 10316596	A	19981202	JP 1997-125905	19970515
JP 10316760	A	19981202	JP 1997-145891	19970520
PRIORITY APPLN. INFO.:			JP 1997-125905	A 19970515
			JP 1997-145891	A 19970520



OTHER SOURCE(S): MARPAT 130:15169.

AB Compns. comprise linear or cyclic fluorinated saturated hydrocarbons containing 10-95 mol% trihydrofluorohydrocarbons Rf1-R1-Rf2 (I) and the balance of dihydrofluorohydrocarbons Rf1-R2-Rf2 (II) (R1 = carbon chain composed of CHF and CH<sub>2</sub>; Rf1, Rf2 = perfluoroalkyl, F or H with the proviso that ≥1 of them is perfluoroalkyl, or Rf1 and Rf2 are bonded together to form a ring containing a perfluoroalkylene chain; R2 = carbon chain composed of CHF and CHF, with the proviso that the skeletons of the compds. I and II are the same). These compns. have an excellent chemical stability and a high safety for the living bodies, do not deplete the ozonosphere, and are usable for forming solvents for polymers, particularly for forming polymer films.

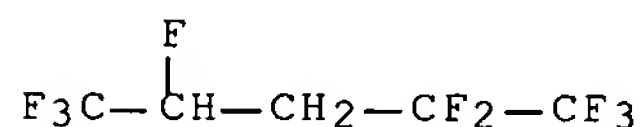
IT 141993-32-0P, 1,1,1,2,2,4,5,5,5-Nonafluoropentane

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(fluorinated saturated hydrocarbon compns. as detergents and solvents for forming polymer films)

RN 141993-32-0 CAPLUS

CN Pentane, 1,1,1,2,2,4,5,5,5-nonafluoro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 11 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1997:238342 CAPLUS Full-text

DOCUMENT NUMBER: 126:227147

TITLE: Azeotrope-like mixtures of pentafluoropropane and hydrofluorocarbon having 3-6 carbon atoms useful as heat-transfer agents and/or refrigerants

INVENTOR(S): Wilson, David Paul; Singh, Rajiv Ratna; Basu, Rajat Subhra; Swan, Ellen Louise; Nalewajek, David

PATENT ASSIGNEE(S): Electric Power Research Institute, USA

SOURCE: PCT Int. Appl., 71 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9705211	A1	19970213	WO 1996-US12340	19960726
W: AL, AU, BB, BG, BR, CA, CN, CZ, EE, ES, GE, HU, IL, IS, JP, KG, KP, KR, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TR, TT, UA, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
US 5800729	A	19980901	US 1996-685821	19960725
CA 2227915	A1	19970213	CA 1996-2227915	19960726
AU 9666023	A	19970226	AU 1996-66023	19960726
EP 840768	A1	19980513	EP 1996-925538	19960726
EP 840768	B1	20010328		
R: DE, ES, FR, GB, IT				



JP 2001509180	T	20010710	JP 1997-507798	19960726
ES 2158326	T3	20010901	ES 1996-925538	19960726
TW 419517	B	20010121	TW 1997-86103511	19970320
US 6423757	B1	20020723	US 1998-233721	19980831
US 6557359	B1	20030506	US 1998-271043	19980831
PRIORITY APPLN. INFO.:			US 1995-1530P	P 19950726
			US 1996-685821	A 19960725
			WO 1996-US12340	W 19960726

AB The mixture comprises pentafluoropropane and a hydrofluorocarbon C<sub>x</sub>F<sub>y</sub>H<sub>z</sub>, where x is 3, 4, 5, or 6 and y and z are each independently 1 or a pos. whole number such that the y/(y + z) ratio is >0.67.

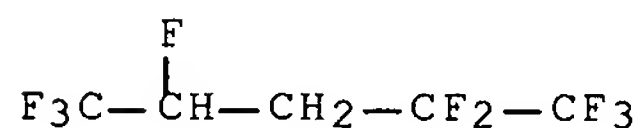
IT 141993-32-0 142347-13-5

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(azeotrope-like mixts. with pentafluoropropane as heat-transfer agents and/or refrigerants)

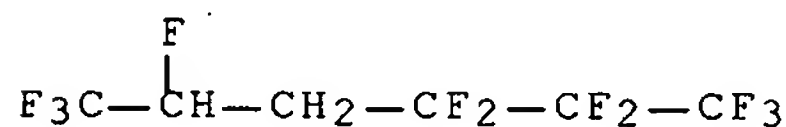
RN 141993-32-0 CAPLUS

CN Pentane, 1,1,1,2,2,4,5,5,5-nonafluoro- (9CI) (CA INDEX NAME)



RN 142347-13-5 CAPLUS

CN Hexane, 1,1,1,2,2,3,3,5,6,6,6-undecafluoro- (9CI) (CA INDEX NAME)



L7 ANSWER 12 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1995:980960 CAPLUS Full-text

DOCUMENT NUMBER: 124:32444

TITLE: Preparation and properties of some polyfluorinated pentanes

AUTHOR(S): Bispen, T. A.; Borutskaya, G. V.; Mikhailova, T. V.; Moldavskii, D. D.; Furin, G. G.

CORPORATE SOURCE: RNTs "Prikladnaya Khimiya", St. Petersburg, Russia

SOURCE: Zhurnal Prikladnoi Khimii (Sankt-Peterburg) (1995), 68(5), 793-6

CODEN: ZPKHAB; ISSN: 0044-4618

PUBLISHER: Nauka

DOCUMENT TYPE: Journal

LANGUAGE: Russian

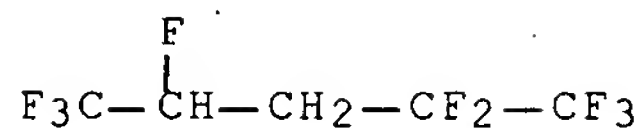
AB SbF<sub>5</sub> was used as a catalyst in reaction of hexafluoropropylene with tetrafluoroethylene to prepare perfluoro-2-pentene. Perfluoro-2-pentene was hydrogenated or fluorinated over Pd catalyst to prepare polyfluorinated pentane refrigerants.

IT 141993-32-0P, 2,3,3-Trihydroperfluoropentane

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of polyfluorinated pentane refrigerants)

RN 141993-32-0 CAPLUS

CN Pentane, 1,1,1,2,2,4,5,5,5-nonafluoro- (9CI) (CA INDEX NAME)



L7 ANSWER 13 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1995:926229 CAPLUS Full-text  
 DOCUMENT NUMBER: 123:317608  
 TITLE: Hydrofluoroalkanes as cleaning and degreasing solvents  
 INVENTOR(S): Van Der Puy, Michael; Basu, Rajat Subhra; Nalewajek, David; Ellis, Lois Anne  
 PATENT ASSIGNEE(S): AlliedSignal Inc., USA  
 SOURCE: PCT Int. Appl., 24 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9519947	A1	19950727	WO 1995-US679	19950119
W: AM, AU, BB, BG, BR, BY, CA, CN, CZ, EE, FI, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LV, MD, MG, MN, MW, MX, NO, NZ, PL, RO, RU, SD, SI, SK, TJ, TT, UA, UZ, VN				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
US 5696307	A	19971209	US 1994-184810	19940121
CA 2180343	A1	19950727	CA 1995-2180343	19950119
AU 9516826	A	19950808	AU 1995-16826	19950119
EP 740647	A1	19961106	EP 1995-908552	19950119
R: DE, ES, FR, GB, IT				
CN 1140445	A	19970115	CN 1995-191281	19950119
JP 09508165	T	19970819	JP 1995-519636	19950119
PRIORITY APPLN. INFO.:			US 1994-184810	A 19940121
			WO 1995-US679	W 19950119

OTHER SOURCE(S): MARPAT 123:317608

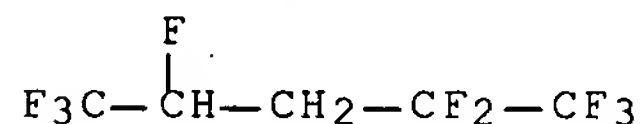
AB Hydrofluoroalkanes, especially butanes, pentanes, and hexanes, such as CF<sub>3</sub>CF<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>F, are useful as solvents, especially for vapor degreasing and solvent cleaning.

IT 141993-32-0 142347-13-5

RL: TEM (Technical or engineered material use); USES (Uses)  
 (hydrofluoroalkanes, especially butanes, pentanes, and hexanes, as cleaning and degreasing solvents).

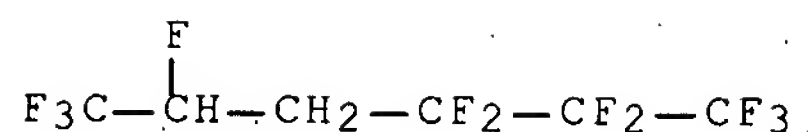
RN 141993-32-0 CAPLUS

CN Pentane, 1,1,1,2,2,4,5,5,5-nonafluoro- (9CI) (CA INDEX NAME)



RN 142347-13-5 CAPLUS

CN Hexane, 1,1,1,2,2,3,3,5,6,6,6-undecafluoro- (9CI) (CA INDEX NAME)



L7 ANSWER 14 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1994:608420 CAPLUS Full-text  
 DOCUMENT NUMBER: 121:208420  
 TITLE: Use of nonflammable extensively fluorinated compounds  
 as heat-transfer agents  
 INVENTOR(S): Becker, Wilfried  
 PATENT ASSIGNEE(S): Hoechst A.-G., Germany  
 SOURCE: Ger. Offen., 3 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

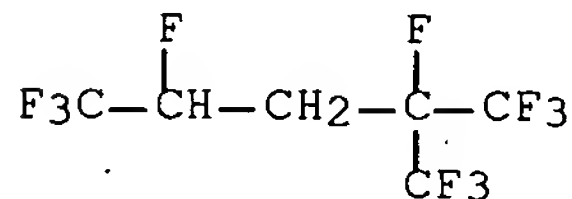
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 4305239	A1	19940825	DE 1993-4305239	19930220
EP 612825	A1	19940831	EP 1994-102263	19940215
EP 612825	B1	20011010		
R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL, SE				
AT 206741	T	20011015	AT 1994-102263	19940215
ES 2165369	T3	20020316	ES 1994-102263	19940215
CA 2115984	A1	19940821	CA 1994-2115984	19940218
CA 2115984	C	20060502		
JP 06287550	A	19941011	JP 1994-21468	19940218
JP 2005047926	A	20050224	JP 2004-263005	20040909
PRIORITY APPLN. INFO.:			DE 1993-4305239	A 19930220
			JP 1994-21468	A3 19940218

AB The agents are extensively fluorinated C<sub>≥3</sub> alkanes and/or dialkyl ethers. The agents can be used with flammable liqs. selected from low hydrocarbons, dialkyl ethers, or alcs.

IT 158200-40-9  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (nonflammable heat-transfer agent containing)

RN 158200-40-9 CAPLUS

CN Pentane, 1,1,1,2,4,5,5,5-octafluoro-2-(trifluoromethyl)- (9CI) (CA INDEX NAME)



L7 ANSWER 15 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1994:274468 CAPLUS Full-text

DOCUMENT NUMBER: 120:274468  
 TITLE: Solvent compositions for dehydration  
 INVENTOR(S): Kikuchi, Hideaki; Ogawa, Motosuke  
 PATENT ASSIGNEE(S): Du Pont-Mitsui Fluorochemicals Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 3 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06007610	A	19940118	JP 1992-192788	19920629
JP 3268506	B2	20020325		

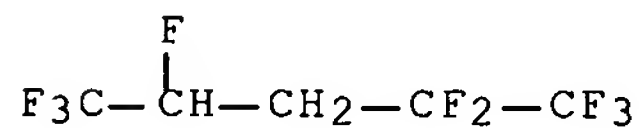
PRIORITY APPLN. INFO.: JP 1992-192788 19920629  
 OTHER SOURCE(S): MARPAT 120:274468

AB The compns. contain  $C_nH_mF_{2n+2-m}$  ( $4 \leq n \leq 6$ ;  $1 \leq m \leq 4$ ), preferably at 5-20%, and  $CH_2(OMe)_2$ . Preferably,  $C_nH_mF_{2n+2-m}$  are octafluorobutane, nonafluoropentane, decafluoropentane, undecafluorohexane, and/or dodecafluorohexane. The compns. are useful for dehydration of metal parts, plastic parts, or glass parts after water washing.

IT 141993-32-0  
 RL: USES (Uses)  
 (solvent compds. containing dimethoxymethane and, for dehydration)

RN 141993-32-0 CAPLUS

CN Pentane, 1,1,1,2,2,4,5,5,5-nonafluoro- (9CI) (CA INDEX NAME)



L7 ANSWER 16 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1994:54176 CAPLUS Full-text

DOCUMENT NUMBER: 120:54176

TITLE: 1,1,1,2,2,5,5,5-octafluoropentane and production thereof

INVENTOR(S): Aoyama, Hirokazu; Seki, Eiji; Koyama, Satoshi

PATENT ASSIGNEE(S): Daikin Industries, Ltd., Japan

SOURCE: PCT Int. Appl., 28 pp.  
 CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9316023	A1	19930819	WO 1993-JP116	19930201

W: JP, US  
 RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

PRIORITY APPLN. INFO.: JP 1992-21089 A 19920206  
 JP 1992-44137 A 19920229  
 JP 1992-79226 A 19920229  
 JP 1992-84616 A 19920306

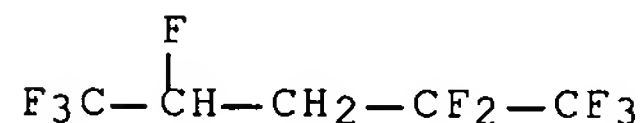
OTHER SOURCE(S): CASREACT 120:54176

AB The title compound (I), useful as a substitute for chlorofluorocarbons (no data) was prepared by hydrogenation of decafluoro-2-pentene (II) in the presence of a catalyst. Hydrogenation of II in the presence of Pt under hydrogen at 300° gave I with 90% selectivity for I.

IT 141993-32-0P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and defluorination of)

RN 141993-32-0 CAPLUS

CN Pentane, 1,1,1,2,2,4,5,5,5-nonafluoro- (9CI) (CA INDEX NAME)



L7 ANSWER 17 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1992:633426 CAPLUS Full-text

DOCUMENT NUMBER: 117:233426

TITLE: Saturated linear polyfluorohydrocarbons, processes for their production, and their use in cleaning compositions

INVENTOR(S): Krespan, Carl George; Rao, Velliyur Nott Mallikarjuna

PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co., USA

SOURCE: PCT Int. Appl., 39 pp.  
 CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9206941	A1	19920430	WO 1991-US7240	19911010
W: AU, BR, CA, JP, KR, SU				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, NL, SE				
US 5171902	A	19921215	US 1990-595840	19901011
IN 177086	A1	19961102	IN 1991-CA752	19911007
AU 9187644	A	19920520	AU 1991-87644	19911010
EP 552252	A1	19930728	EP 1991-918761	19911010
EP 552252	B1	19960619		
R: DE, ES, FR, GB, IT, NL				
JP 05508418	T	19931125	JP 1991-517939	19911010
JP 3162379	B2	20010425		
ES 2089238	T3	19961001	ES 1991-918761	19911010
RU 2073664	C1	19970220	RU 1991-5011297	19911010
CN 1060461	A	19920422	CN 1991-109641	19911011
CN 1033320	B	19961120		
ZA 9108127	A	19930413	ZA 1991-8127	19911011
US 5504265	A	19960402	US 1992-919454	19920727
US 5683978	A	19971104	US 1995-460020	19950602
US 5723701	A	19980303	US 1995-460021	19950602
US 6506950	B1	20030114	US 1995-458331	19950602
CN 1139152	A	19970101	CN 1996-101528	19960115
CN 1057331	B	20001011		
PRIORITY APPLN. INFO.:			US 1990-595840	A 19901011
			WO 1991-US7240	A 19911010

US 1992-919454

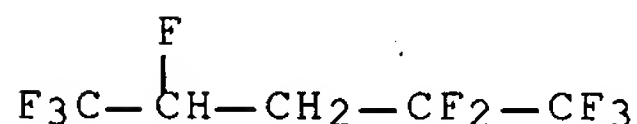
A3 19920727

AB Title compds., e.g., CF<sub>3</sub>CHFCHFCF<sub>2</sub>CF<sub>3</sub>, CF<sub>3</sub>CF<sub>2</sub>CHFCH<sub>2</sub>CF<sub>2</sub>CF<sub>2</sub>CF<sub>3</sub>, CF<sub>3</sub>CF<sub>2</sub>CH<sub>2</sub>CHFCF<sub>2</sub>CF<sub>2</sub>CF<sub>3</sub>, were prepared. Thus, a mixture of AlF<sub>2.8</sub> Cl<sub>0.2</sub>, hexafluoropropene, and tetrafluoroethylene was shaken at -20 to 20° in a metal tube to give 70% CF<sub>3</sub>CF:CF<sub>2</sub>CF<sub>3</sub>. The latter in EtOH was hydrogenated over 5% Pd/C under 50 psi H to give .apprx. 82 weight% CF<sub>3</sub>CH<sub>2</sub>CHFCF<sub>2</sub>CF<sub>3</sub>/CF<sub>3</sub>CHFCH<sub>2</sub>CF<sub>2</sub>CF<sub>3</sub> and .apprx. 18 weight% CF<sub>3</sub>CHFCHFCF<sub>2</sub>CF<sub>3</sub>.

IT 141993-32-0P 142347-13-5P 142347-15-7P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of, as solvent)

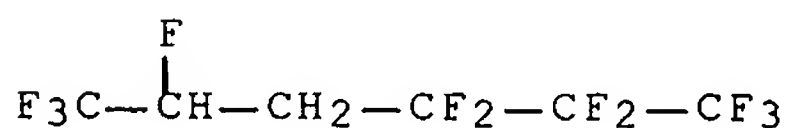
RN 141993-32-0 CAPLUS

CN Pentane, 1,1,1,2,2,4,5,5,5-nonafluoro- (9CI) (CA INDEX NAME)



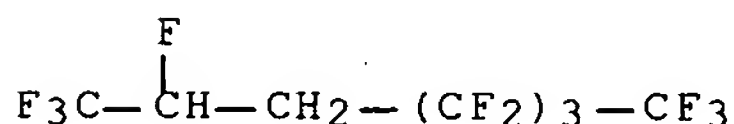
RN 142347-13-5 CAPLUS

CN Hexane, 1,1,1,2,2,3,3,5,6,6,6-undecafluoro- (9CI) (CA INDEX NAME).



RN 142347-15-7 CAPLUS

CN Heptane, 1,1,1,2,2,3,3,4,4,6,7,7,7-tridecafluoro- (9CI) (CA INDEX NAME)



L7 ANSWER 18 OF 18 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1992:410365 CAPLUS Full-text

DOCUMENT NUMBER: 117:10365

TITLE: Binary azeotropic compositions of polyfluoropentanes and methanol

INVENTOR(S): Merchant, Abid N.

PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co., USA

SOURCE: U.S., 4 pp. Cont.-in-part of U.S. Ser. No. 592,565.  
 CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5100572	A	19920331	US 1991-723312	19910628
US 5531916	A	19960702	US 1993-135242	19931013



US 5824634  
PRIORITY APPLN. INFO.:

A

19981020

US 1996-674707

19960702

US 1990-592565

A2 19901003

US 1990-595833

A2 19901011

US 1990-595834

A2 19901011

US 1991-723312

A2 19910628

US 1991-787998

B1 19911107

US 1993-135242

A1 19931013

AB Azeotropic mixts. of 3-13% MeOH and 87-97% mixture of 2,2,3-trihydroperfluoropentane .apprx.80, 2,3-dihydroperfluoropentane .apprx.15, and 2,3,3-trihydroperfluoropentane .apprx.5% are useful as cleaning agents (especially for printed circuit boards), blowing agents, refrigerants, heat transfer media, etc.

IT 141993-33-1

RL: USES (Uses)

(azeotropic, as cleaning solvents, blowing agents and refrigerants)

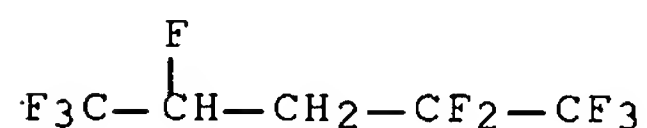
RN 141993-33-1 CAPLUS

CN Methanol, mixt. with 1,1,1,2,2,3,4,5,5,5-decafluoropentane, 1,1,1,2,2,3,5,5,5-nonafluoropentane and 1,1,1,2,2,4,5,5,5-nonafluoropentane (9CI) (CA INDEX NAME)

CM 1

CRN 141993-32-0

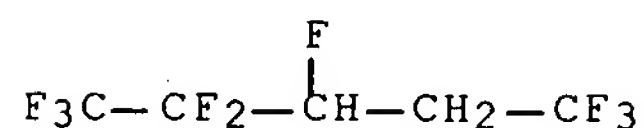
CMF C5 H3 F9



CM 2

CRN 141993-31-9

CMF C5 H3 F9



CM 3

CRN 138495-42-8

CMF C5 H2 F10



CRN 67-56-1  
CMF C H4 O

$$\text{H}_3\text{C}-\text{OH}$$
$$\text{Cl}-\underset{\text{1}}{\text{C}}-\text{---}-\underset{\text{2}}{\text{G}}-\text{---}-\underset{\text{3}}{\text{C}}-\text{F}$$

```
L12      121 SEA FILE=REGISTRY $$$ FUL L10
L13      58 SEA FILE=REGISTRY ABB=ON  PLU=ON  L12 AND F>5
L14      13 SEA FILE=REGISTRY ABB=ON  PLU=ON  L13 AND (C/ELS AND H/ELS AND
          F/ELS AND CL/ELS AND 4/ELC.SUB)
L15      24 SEA FILE=REGISTRY ABB=ON  PLU=ON  L13 AND (C/ELS AND F/ELS AND
          CL/ELS AND 3/ELC.SUB)
L16      37 SEA FILE=REGISTRY ABB=ON  PLU=ON  L14 OR L15
L17      42 SEA FILE=CAPLUS ABB=ON  PLU=ON  L16
```

```
=> d 117 ibib abs hitstr tot
```

L17 ANSWER 1 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 2005:951701 CAPLUS Full-text  
DOCUMENT NUMBER: 144:488091  
TITLE: Ortho acid derivatives. Trihalomethyl compounds  
AUTHOR(S): Prakash, G. K. S.; Hu, J.  
CORPORATE SOURCE: Department of Chemistry, University of Southern  
California, Los Angeles, CA, 90089-1661, USA  
SOURCE: Science of Synthesis (2005), 22, 617-668  
CODEN: SSCYJ9  
PUBLISHER: Georg Thieme Verlag  
DOCUMENT TYPE: Journal; General Review  
LANGUAGE: English  
AB A review of the preparation and synthetic applications of trihalomethyl  
comps.  
IT 307-28-8P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and synthetic applications of trihalomethyl comps.)

RN 307-28-8 CAPLUS  
CN Hexane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,6-undecafluoro- (9CI) (CA  
INDEX NAME)

Cl3C-(CF2)4-CF3

REFERENCE COUNT: 219 THERE ARE 219 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L17 ANSWER 2 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1995:365170 CAPLUS Full-text  
DOCUMENT NUMBER: 122:290297  
TITLE: Synthetic utility of 3-(perfluoro-1,1-  
dimethylbutyl)prop-1-ene. Part VI . A free-radical  
addition of CCl<sub>4</sub> and CBr<sub>4</sub> and dehydrohalogenation of  
the adducts  
AUTHOR(S): Plenkiewicz, Halina; Dmowski, Wojciech  
CORPORATE SOURCE: Institute of Organic Chemistry, Polish Academy of  
Sciences, Warsaw, 01-224, Pol.  
SOURCE: Journal of Fluorine Chemistry (1995), 70(2), 259-64  
CODEN: JFLCAR; ISSN: 0022-1139  
PUBLISHER: Elsevier  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 122:290297

AB Heating the title compound 1 in excess CCl<sub>4</sub> and in the presence of a free-  
radical initiator (t-Bu peroxide) at 120 ° afforded 1,1,1,3-tetrachloro-4-  
(perfluoro-1,1-dimethylbutyl)butane (2) as the main product together with  
considerable amts. of cyclic dimer, 1,4-bis(perfluoro-1,1-  
dimethylbutyl)cyclohexane (3). Reaction of 1 with CBr<sub>4</sub> at 120 °C gave  
1,1,1,3-tetrabromo-4-(perfluoro-1,1- dimethylbutyl)butane (4) as the sole  
product while at 220 ° a mixture of 1,2-dibromo-3-(perfluoro-1,1-  
dimethylbutyl)propane (5) and 1,1-dibromo-4-(perfluoro-1,1-dimethylbutyl)buta-  
1,3-diene (6) was formed. Treatment of adducts 2 and 4 with methanolic  
potassium hydroxide at ambient temperature gave mixts. of 1,1,3-trihalo-4-  
(perfluoro-1,1- dimethylbutyl)but-1-enes (7; chloro) or (8;bromo ) and 1,1-  
dihalo-4-(perfluoro-1,1-dimethylbutyl)buta-1,3-dienes (9;chloro) or (6; bromo)  
in ratios depending on the adduct to base ratio and on the reaction  
conditions. Using an excess of the base and reflux temperature, adduct 9 and  
diene 6 were converted into Me 4-(perfluoro-1,1-dimethylbutyl)buten- 3-oate .

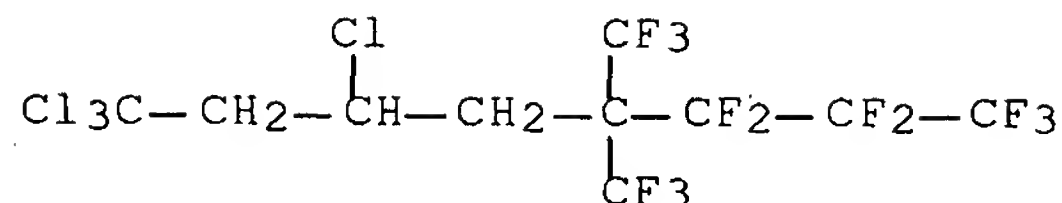
IT 119285-90-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)

(radical addition of CCl<sub>4</sub> and CBr<sub>4</sub> to perfluorodimethylbutylpropene and  
dehydrohalogenation of the adducts)

RN 119285-90-4 CAPLUS

CN Octane, 6,8,8,8-tetrachloro-1,1,1,2,2,3,3-heptafluoro-4,4-  
bis(trifluoromethyl)- (9CI) (CA INDEX NAME)



L17 ANSWER 3 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1994:280365 CAPLUS Full-text

DOCUMENT NUMBER: 120:280365

TITLE: Method and apparatus for extracorporeal separation of fluorochemicals from whole blood of a patient

INVENTOR(S): Richard, Thomas J.; Schoendorfer, Donald W.; Kaufman, Robert J.; Goodin, Thomas H.

PATENT ASSIGNEE(S): Hemagen/PFC, USA; Baxter Health Care Corp.

SOURCE: PCT Int. Appl., 42 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9324158	A1	19931209	WO 1993-US5023	19930526
W: AT, AU, BB, BG, BR, BY, CA, CH, CZ, DE, DK, ES, FI, GB, HU, JP, KP, KR, LK, LU, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, VN				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
US 5295953	A	19940322	US 1992-888987	19920526
AU 9345237	A	19931230	AU 1993-45237	19930526
EP 642364	A1	19950315	EP 1993-915139	19930526
EP 642364	B1	19970319		
R: AT, BE, CH, DE, DK, FR, GB, IT, LI, LU, NL, SE				
AT 150323	T	19970415	AT 1993-915139	19930526
PRIORITY APPLN. INFO.:				
			US 1992-888987	A 19920526
			WO 1993-US5023	A 19930526

AB Methods and apparatus for practical extracorporeal separation of fluorochems. from clin. fluorochem.-containing whole blood of a patient are disclosed. The methods incorporate centrifugal apheresis devices, preferably with low extracorporeal vols., that provide a means for continuously removing separated fluorochem.-enriched fractions from the centrifuge during processing and return of whole blood-enriched fractions to the patient. A dog was made anemic by successive blood exchange with NaCl solution over a 4-day period and was then infused 1 wk later with 40 mL/kg of an emulsion containing 1.75 weight/volume% lecithin, 2 weight/volume% oil and 40 volume/volume% perfluorooctyl bromide. The dog was connected to the invention device and its blood was processed for 2 h after which its fluorocrit decreased by 79%.

IT 88639-56-9

RL: USES (Uses)

(whole blood containing, extracorporeal separation of, with centrifugal apheresis device)

RN 88639-56-9 CAPLUS

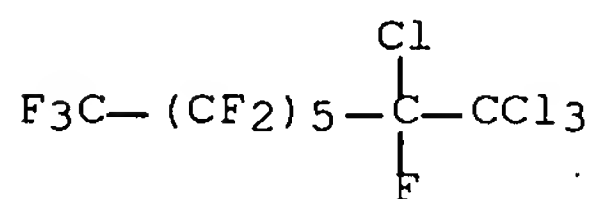
CN Heptane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,7,7,7-tridecafluoro- (9CI)  
(CA INDEX NAME)

F<sub>3</sub>C—(CF<sub>2</sub>)<sub>5</sub>—CCl<sub>3</sub>

L17 ANSWER 4 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1994:111270 CAPLUS Full-text  
 DOCUMENT NUMBER: 120:111270  
 TITLE: Prediction of viscosities using chemical graph theory  
 AUTHOR(S): Pitzer, Edward W.  
 CORPORATE SOURCE: Wright Lab., Wright-Patterson AFB, OH, 45433-6563, USA  
 SOURCE: Tribology Transactions (1993), 36(3), 417-20  
 CODEN: TRTRE4; ISSN: 1040-2004  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB The viscosities of three groups of lubricant basestock mols. were predicted using chemical graph theory. Alkyl di-Ph phosphates, trimethyloethane esters, and oligomers of chlorotrifluoroethylene were modeled. A graph theor. approach for the modeling of these compds. used summations of the shortest topol. distances between atoms in the mol. A new topol. index was introduced that wts. chlorine mols. in the chlorotrifluoroethylene oligomers. For each group modeled, the coefficient of determination r<sup>2</sup> was >0.99 with a standard error of estimate «5% of the average value modeled.  
 IT 88639-57-0 135941-32-1  
 RL: PRP (Properties)  
 (viscosity of, prediction of, by chemical graph theory, as model lubricating oil)  
 RN 88639-57-0 CAPLUS  
 CN Octane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluoro- (9CI) (CA INDEX NAME)

Cl<sub>3</sub>C—(CF<sub>2</sub>)<sub>6</sub>—CF<sub>3</sub>

RN 135941-32-1 CAPLUS  
 CN Octane, 1,1,1,2-tetrachloro-2,3,3,4,4,5,5,6,6,7,7,8,8,8-tetradecafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 5 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1992:469439 CAPLUS Full-text  
 DOCUMENT NUMBER: 117:69439  
 TITLE: Process for production of polyfluoroolefins via aluminum halide-catalyzed coupling of polyfluoroallylic fluorides with polyfluoroethylenes  
 INVENTOR(S): Krespan, Carl George

PATENT ASSIGNEE(S): du Pont de Nemours, E. I., and Co., USA  
 SOURCE: PCT Int. Appl., 26 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9206942	A1	19920430	WO 1991-US7242	19911010
W: AU, BR, CA, JP, KR, SU				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, NL, SE				
US 5162594	A	19921110	US 1991-776652	19911004
IN 177095	A1	19961109	IN 1991-CA762	19911009
AU 9190281	A	19920520	AU 1991-90281	19911010
EP 552303	A1	19930728	EP 1991-920551	19911010
EP 552303	B1	19950614		
R: DE, ES, FR, GB, IT, NL				
JP 07502254	T	19950309	JP 1991-518539	19911010
JP 3162380	B2	20010425		
ES 2074736	T3	19950916	ES 1991-920551	19911010
RU 2093502	C1	19971020	RU 1991-5011268	19911010
CN 1061399	A	19920527	CN 1991-110828	19911011
CN 1030908	B	19960207		
ZA 9108128	A	19930413	ZA 1991-8128	19911011
US 5220082	A	19930615	US 1992-904263	19920625
US 5276221	A	19940104	US 1993-63379	19930125
PRIORITY APPLN. INFO.:			US 1990-595839	A 19901011
			US 1991-771677	A 19911004
			US 1991-776652	A 19911004
			WO 1991-US7242	A 19911010
			US 1992-904263	A3 19920625

OTHER SOURCE(S): CASREACT 117:69439; MARPAT 117:69439

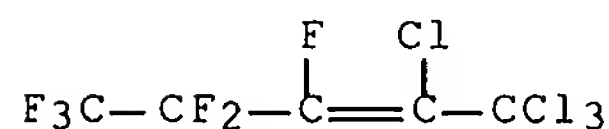
AB C<sub>2</sub>5 polyfluoroolefins were prepared by reaction of R<sub>1</sub>R<sub>2</sub>C:CR<sub>3</sub>CF<sub>2</sub>R<sub>4</sub> [R<sub>1</sub>, R<sub>2</sub> = H, F, Cl, R<sub>6</sub>; R<sub>3</sub> = H, F, Cl; R<sub>4</sub> = F, R<sub>6</sub>; R<sub>2</sub>R<sub>4</sub> = (CF<sub>2</sub>)<sub>n</sub>; n = 1-3; R<sub>6</sub> = C<sub>2</sub>-12 perfluoroalkyl optionally containing 1 H or 1 Cl] with R<sub>5</sub>FC:CF<sub>2</sub> (R<sub>5</sub> = H, F, Cl) in the presence of AlX<sub>1</sub>X<sub>2</sub>X<sub>3</sub> catalyst (X<sub>1</sub>-X<sub>3</sub> = F, Cl, Br; X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub> cannot all = F). Thus, a metal tube was charged at -20° with AlF<sub>2</sub>-8Cl<sub>10</sub>-2 (prepared from AlCl<sub>3</sub> and CFCl<sub>3</sub>), F<sub>3</sub>CCH:CH<sub>2</sub>, and F<sub>2</sub>C:CF<sub>2</sub> and the sealed tube was shaken 30 min to give 70% F(CF<sub>2</sub>)<sub>2</sub>CF:CF<sub>2</sub>CF<sub>3</sub> as an 89:1 trans/cis mixture

IT 142558-15-4P

RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

RN 142558-15-4 CAPLUS

CN 2-Pentene, 1,1,1,2-tetrachloro-3,4,4,5,5,5-hexafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 6 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1992:425879 CAPLUS Full-text

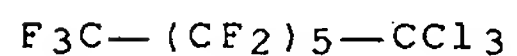
DOCUMENT NUMBER: 117:25879

TITLE: Chlorotrifluoroethylene-derived fluids. I. Model



compound synthesis  
 AUTHOR(S): Paciorek, K. J. L.; Kratzer, R. H.; Nakahara, J. H.;  
 Lin, W. H.; Johri, K. K.  
 CORPORATE SOURCE: Ultrasyst. Def., Inc., Irvine, CA, 92715-1324, USA  
 SOURCE: Journal of Fluorine Chemistry (1991), 55(3), 271-82  
 CODEN: JFLCAR; ISSN: 0022-1139  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 117:25879

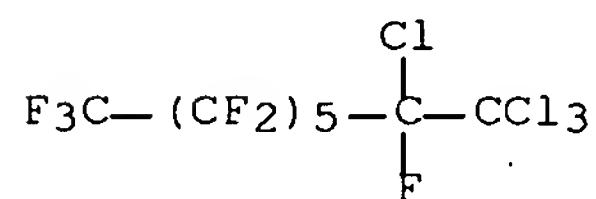
AB A series of chlorofluoroalkanes having chlorines on adjacent carbon atoms was prepared, i.e. n-C5F11CFC1CCl3, n-C6F13CFC1CCl3, n-C5F11CFC1CFC12, n-C6F13CFC1CFC12, n-C5F11CFC1CF2Cl, n-C2F5CFC1CFC1C3F7 and n-CF3CFC1CFC1C4F9, by a combination of halogen exchange, dehalogenation and chlorine addition reactions. An attempt to synthesize n-C6F13CFC1CF2CFC12 by the coupling of n-C6F13CFC1I with an excess of ICF2CFC12 under UV radiation in the presence of Hg gave only n-C6F13CFC1CFC1C6F13 together with CFC12CF2CF2CFC12. Under parallel conditions from n-C6F13CFC1I and CF2ClCFC1I, n-C6F13CFC1CFC1CF2Cl was obtained in 48% yield. Telomers of chlorotrifluoroethylene have potential uses as hydraulic fluids (no data).  
 IT 88639-56-9P, 1,1,1-Trichloroperfluoroheptane 88639-57-0P  
 , 1,1,1-Trichloroperfluorooctane  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and dehalogenation of)  
 RN 88639-56-9 CAPLUS  
 CN Heptane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,7,7,7-tridecafluoro- (9CI)  
 (CA INDEX NAME)



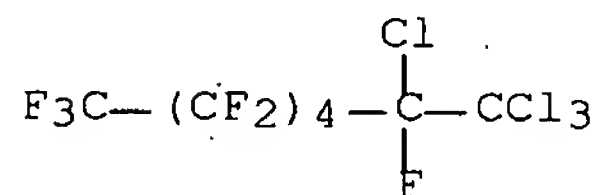
RN 88639-57-0 CAPLUS  
 CN Octane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluoro- (9CI) (CA INDEX NAME)



IT 135941-32-1P, 1,1,1,2-Tetrachloroperfluorooctane  
 141603-13-6P, 1,1,1,2-Tetrachloroperfluoroheptane  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and regioselective dechlorination of)  
 RN 135941-32-1 CAPLUS  
 CN Octane, 1,1,1,2-tetrachloro-2,3,3,4,4,5,5,6,6,7,7,8,8,8-tetradecafluoro- (9CI) (CA INDEX NAME)



RN 141603-13-6 CAPLUS  
 CN Heptane, 1,1,1,2-tetrachloro-2,3,3,4,4,5,5,6,6,7,7,7-dodecafluoro- (9CI)  
 (CA INDEX NAME)

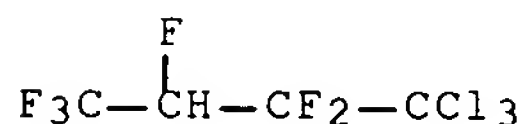


L17 ANSWER 7 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1992:255210 CAPLUS Full-text  
 DOCUMENT NUMBER: 116:255210  
 TITLE: Condensation of chloroform with fluoro alkenes in  
 basic media  
 AUTHOR(S): Nguyen, Thoai; Wakselman, Claude  
 CORPORATE SOURCE: CERCOA, CNRS, Thiais, 94320, Fr.  
 SOURCE: Journal of Fluorine Chemistry (1991), 55(3), 241-8  
 CODEN: JFLCAR; ISSN: 0022-1139  
 DOCUMENT TYPE: Journal  
 LANGUAGE: French  
 OTHER SOURCE(S): CASREACT 116:255210

AB The condensation of  $\text{CHCl}_3$  with  $\text{CF}_3\text{CF}:\text{CF}_2$  under phase-transfer catalysis leads  
 mainly to  $\text{CF}_3\text{CHF}(\text{CF})\text{CCl}_2$  (1a). In the case of  $\text{CF}_2:\text{CFCl}$ , a cyclopropane adduct  
 3b is obtained along with  $\text{CHCl}(\text{CF})\text{CCl}_2$  (1b). The yields of adducts 1a, b or  
 3b are ca. 30%.

IT 58705-96-7P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

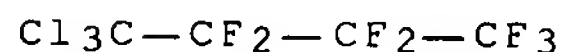
RN 58705-96-7 CAPLUS  
 CN Butane, 1,1,1-trichloro-2,2,3,4,4,4-hexafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 8 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1992:255167 CAPLUS Full-text  
 DOCUMENT NUMBER: 116:255167  
 TITLE: Preparation of hydrogen-containing chlorofluorocarbons  
 INVENTOR(S): Morikawa, Shinsuke; Samejima, Shunichi; Yoshitake,  
 Masaru; Onishi, Keiichi; Tatematsu, Shin  
 PATENT ASSIGNEE(S): Asahi Glass Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04029944	A	19920131	JP 1990-133997	19900525
JP 2760136	B2	19980528		
PRIORITY APPLN. INFO.:			JP 1990-133997	19900525
OTHER SOURCE(S):		CASREACT 116:255167		
AB	The title compds. are prepared by hydrogenation of RfCCl <sub>3</sub> or RfCFCl <sub>2</sub> (Rf = CF <sub>3</sub> , C <sub>2</sub> F <sub>5</sub> , C <sub>3</sub> F <sub>7</sub> ) in presence of Pt catalysts containing ≥1 of Pd, lanthanides, and group 11 elements. A 4:1 mol H/CFC 113a mixture was passed through a reactor packed with Pt-Pd/C at 120° to give a mixture of HCFC 123 87, HCFC 133a 5, and HFC 143a 5%.			
IT	335-49-9 RL: RCT (Reactant); RACT (Reactant or reagent) (hydrogenation of, chlorofluorohydrocarbon from, catalysts for)			
RN	335-49-9 CAPLUS			
CN	Butane, 1,1,1-trichloro-2,2,3,3,4,4,4-heptafluoro- (9CI) (CA INDEX NAME)			



L17 ANSWER 9 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1991:634385 CAPLUS Full-text  
 DOCUMENT NUMBER: 115:234385  
 TITLE: Quantitative structure-activity relationships for fluoroelastomer/chlorofluorocarbon systems  
 AUTHOR(S): Paciorek, Kazimiera J. L.; Masuda, Steven R.; Nakahara, James H.; Snyder, Carl E., Jr.; Warner, William M.  
 CORPORATE SOURCE: Ultrasyst., Inc., Irvine, CA, 92715, USA  
 SOURCE: Industrial & Engineering Chemistry Research (1991), 30(12), 2531-4  
 CODEN: IECRED; ISSN: 0888-5885  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Swell, tensile strength, elongation, and modulus data were determined for vulcanized Viton GLT after exposure to a series of C7-8-chlorofluorocarbon model fluids. Quant. structure-activity relations were developed for the swell as a function of the number of C and Cl atoms and for tensile strength as a function of C number and Cl positions in the chlorofluorocarbons.  
 IT 88639-57-0  
 RL: USES (Uses)  
 (fluoroelastomer swelling, tensile strength, elongation and modulus in presence of, structure-activity relations for)  
 RN 88639-57-0 CAPLUS  
 CN Octane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 10 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1991:517483 CAPLUS Full-text  
 DOCUMENT NUMBER: 115:117483  
 TITLE: Correlation of viscosity-temperature properties of  
 chlorofluorocarbons with molecular structure  
 AUTHOR(S): Snyder, Carl E., Jr.; Paige, Harvey L.; Herrmann,  
 Debbie K.  
 CORPORATE SOURCE: Wright Res. Dev. Cent., Wright-Patterson Air Force  
 Base, OH, USA  
 SOURCE: Lubrication Engineering (1991), 47(6), 485-9  
 CODEN: LUENAG; ISSN: 0024-7154  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB To better understanding of the relationship between structures of various  
 components that could be present in a com. chlorotrifluoroethylene oligomeric  
 hydraulic fluid and viscosity, a series of model compds. were synthesized.  
 Chemical graph theory was used to derive an equation that relates the mol.  
 weight and the mol. structure of the chlorofluorocarbon mols. to their  
 viscosity-temperature properties. Prediction of viscosity-temperature  
 properties of chlorofluorocarbon fluids is possible. The viscosity-  
 temperature properties of chlorofluorocarbon fluids are dependent on the mol.  
 weight, structure, and electronegativities of the bonded atoms of the  
 chlorofluorocarbon fluid.

IT 88639-57-0 135941-32-1

RL: USES (Uses)

(hydraulic fluids, viscosity-temperature correlation for, mol. structure in  
 relation to)

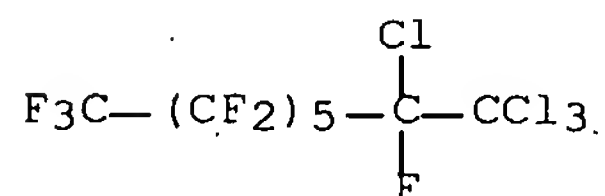
RN 88639-57-0 CAPLUS

CN Octane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluoro-  
 (9CI) (CA INDEX NAME)



RN 135941-32-1 CAPLUS

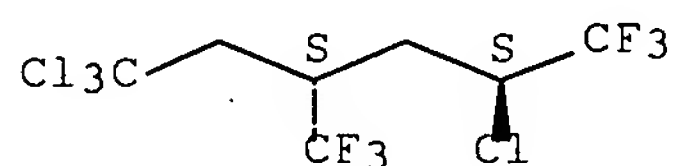
CN Octane, 1,1,1,2-tetrachloro-2,3,3,4,4,5,5,6,6,7,7,8,8,8-tetradecafluoro-  
 (9CI) (CA INDEX NAME)



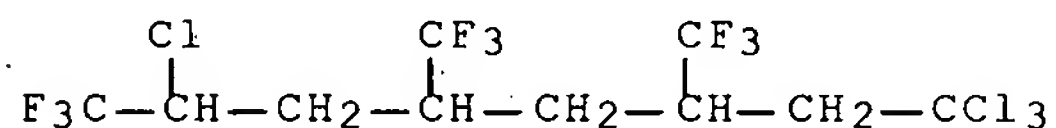
L17 ANSWER 11 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1991:41974 CAPLUS Full-text  
 DOCUMENT NUMBER: 114:41974  
 TITLE: Radical telomerization of 3,3,3-trifluoropropene-1  
 with CCl4  
 AUTHOR(S): Vasil'eva, T. T.; Fokina, I. A.; Vitt, S. V.;  
 Dostovalova, V. I.  
 CORPORATE SOURCE: Inst. Elementoorg. Soedin. im. Nesmeyanova, Moscow,

USSR  
 SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya  
 (1990), (8), 1807-11  
 CODEN: IASKA6; ISSN: 0002-3353  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 AB The title reaction in the presence of  $\text{Fe}(\text{CO})_5 + \text{DMF}$  or  $\text{Fe}(\text{CO})_5 + \text{HMPA}$  gave mainly  $\text{Cl}_3\text{C}[\text{CH}_2\text{CH}(\text{CF}_3)]_n\text{Cl}$  ( $n = 1, 2, 3$ ). The presence of  $\text{Cl}_3\text{CCH}_2\text{CH}(\text{CCl}_3)\text{CF}_3$ , a radical recombination product, confirmed the radical nature of the reaction.  
 IT 131393-11-8P 131393-12-9P 131393-14-1P  
 131393-46-9P 131393-47-0P 131393-48-1P  
 131393-49-2P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 RN 131393-11-8 CAPLUS  
 CN Hexane, 2,6,6,6-tetrachloro-1,1,1-trifluoro-4-(trifluoromethyl)-, ( $R^*, R^*$ )-  
 (9CI) (CA INDEX NAME)

Relative stereochemistry.

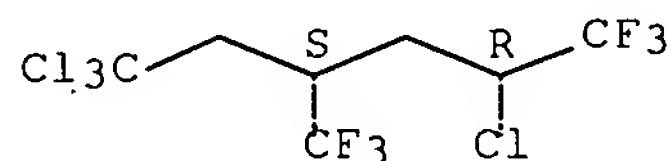


RN 131393-12-9 CAPLUS  
 CN Octane, 2,8,8,8-tetrachloro-1,1,1-trifluoro-4,6-bis(trifluoromethyl)-  
 (9CI) (CA INDEX NAME)



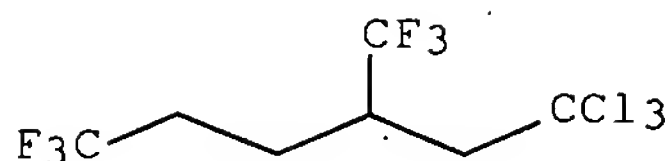
RN 131393-14-1 CAPLUS  
 CN Hexane, 2,6,6,6-tetrachloro-1,1,1-trifluoro-4-(trifluoromethyl)-, ( $R^*, S^*$ )-  
 (9CI) (CA INDEX NAME)

Relative stereochemistry.



RN 131393-46-9 CAPLUS  
 CN Hexane, 1,1,1-trichloro-6,6,6-trifluoro-3-(trifluoromethyl)-, (+)- (9CI)  
 (CA INDEX NAME)

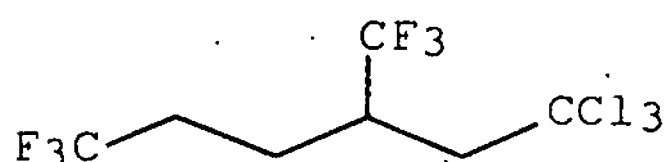
Rotation (+).



RN 131393-47-0 CAPLUS

CN Hexane, 1,1,1-trichloro-6,6,6-trifluoro-3-(trifluoromethyl)-, (-)- (9CI)  
(CA INDEX NAME)

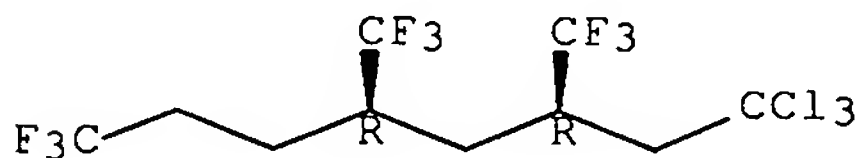
Rotation (-).



RN 131393-48-1 CAPLUS

CN Octane, 1,1,1-trichloro-8,8,8-trifluoro-3,5-bis(trifluoromethyl)-,  
(R\*,R\*)- (9CI) (CA INDEX NAME)

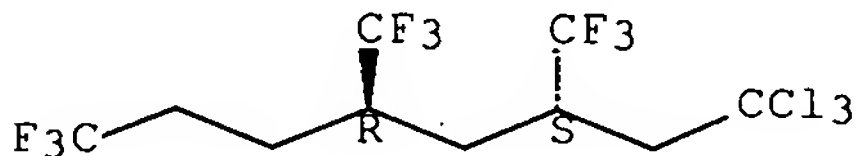
Relative stereochemistry.



RN 131393-49-2 CAPLUS

CN Octane, 1,1,1-trichloro-8,8,8-trifluoro-3,5-bis(trifluoromethyl)-,  
(R\*,S\*)- (9CI) (CA INDEX NAME)

Relative stereochemistry.



L17 ANSWER 12 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1990:551761 CAPLUS Full-text

DOCUMENT NUMBER: 113:151761

TITLE: Transition metal catalyzed carbon-carbon coupling reactions of 3,3,3-trifluoropropene

AUTHOR(S): Keim, Wilhelm; Raffeis, Gerhard H.; Kurth, Dirk

CORPORATE SOURCE: Inst. Tech. Chem. Petrolchem., RWTH Aachen, Aachen, D-5100, Germany

SOURCE: Journal of Fluorine Chemistry (1990), 48(2), 229-37  
CODEN: JFLCAR; ISSN: 0022-1139

DOCUMENT TYPE: Journal

LANGUAGE: English



OTHER SOURCE(S): CASREACT 113:151761

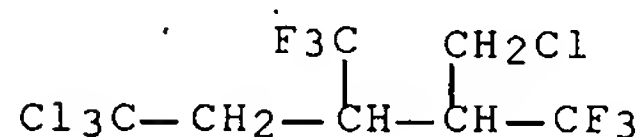
AB Attempts to dimerize 3,3,3-trifluoropropene catalytically with homogeneous nickel catalysts were unsuccessful. In a stoichiometric reaction a new dimer was formed. Reactions to telomerize 3,3,3-trifluoropropene with tetrachloromethane in the presence of copper salts yielded new telomers.

IT 129612-90-4P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 129612-90-4 CAPLUS

CN Pentane, 5,5,5-trichloro-2-(chloromethyl)-1,1,1-trifluoro-3-(trifluoromethyl)- (9CI) (CA INDEX NAME)



L17 ANSWER 13 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1990:496992 CAPLUS Full-text

DOCUMENT NUMBER: 113:96992

TITLE: Free-radical initiated addition of carbon tetrachloride to fluoro olefins

AUTHOR(S): Chen, Loomis S.

CORPORATE SOURCE: Res. Inst., Univ. Dayton, Dayton, OH, 45469, USA

SOURCE: Journal of Fluorine Chemistry (1990), 47(2), 261-72  
CODEN: JFLCAR; ISSN: 0022-1139

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 113:96992

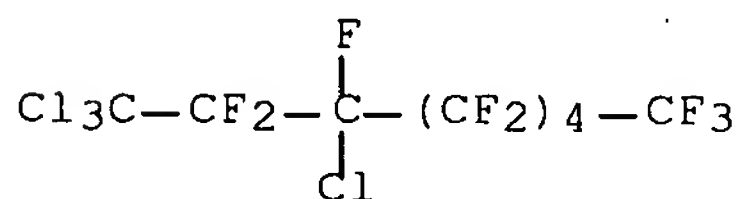
AB The reaction between CCl<sub>4</sub> and unsym. fluoro olefins, e. g., RCF:CF<sub>2</sub> (R = n-C<sub>5</sub>F<sub>11</sub>, C<sub>6</sub>F<sub>5</sub>), has led to the addition product RCFClCF<sub>2</sub>CCl<sub>3</sub>. Addition was apparently unidirectional under the conditions used since the isomeric adduct RCF(CCl<sub>3</sub>)CF<sub>2</sub>Cl could not be detected. The effects of exptl. conditions such as free radical initiators, temperature, and time are discussed for the different reactions studied. A probable mechanism is suggested for these addns.

IT 128839-53-2P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 128839-53-2 CAPLUS

CN Octane, 1,1,1,3-tetrachloro-2,2,3,4,4,5,5,6,6,7,7,8,8,8-tetradecafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 14 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1990:423041 CAPLUS Full-text

DOCUMENT NUMBER: 113:23041

TITLE: Reactions of perchlorofluoro compounds. VI.  
Rearrangement of higher perchlorofluoro olefins and their reactions with nucleophiles and electrophiles

AUTHOR(S): Hu, Changming; Liu, Hui; Xu, Zeqi

CORPORATE SOURCE: Shanghai Inst. Org. Chem., Acad. Sin., Shanghai, Peop. Rep. China

SOURCE: Journal of Fluorine Chemistry (1990), 46(3), 491-506  
CODEN: JFLCAR; ISSN: 0022-1139

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 113:23041

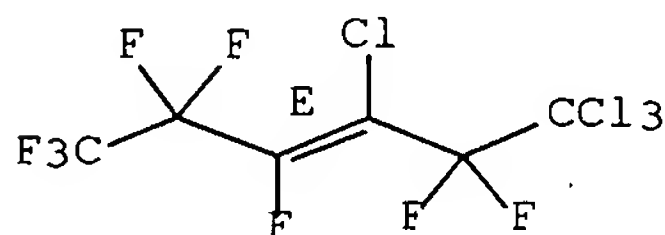
AB The F--induced isomerization of Cl<sub>2</sub>CF<sub>2</sub>CF<sub>2</sub>CFClCF<sub>2</sub>CF:CF<sub>2</sub> (I) gave only trans-Cl<sub>2</sub>CF<sub>2</sub>CF<sub>2</sub>CFClCF:CF<sub>2</sub>CF<sub>3</sub> (II), then trans-Cl<sub>2</sub>CF<sub>2</sub>CF<sub>2</sub>CCl:CF<sub>2</sub>CF<sub>2</sub>CF<sub>3</sub> (III) and trans-Cl<sub>2</sub>CF<sub>2</sub>CF<sub>2</sub>CF:CF<sub>2</sub>CF<sub>3</sub>, with the latter predominating, while AlCl<sub>3</sub>-catalyzed isomerization of I gave only II and III. No cis isomer was detected. Such isomerization was terminated once a Cl atom was linked to the C:C bond. Reactions of I, II, and III with various nucleophiles were studied. With I, C-1 was exclusively attacked by nucleophiles to form 3 kinds of products. In II only C-2 was attacked, and the reaction proceeded via an SN2' mechanism. In III only C-4 was attacked, and no protonation product was observed. The reactivity decreased in the order I > III > II, which was directly related to the polarity of the C:C bond. Only I reacted with electrophiles under normal conditions.

IT 127867-14-5P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 127867-14-5 CAPLUS

CN 3-Hexene, 1,1,1,3-tetrachloro-2,2,4,5,5,6,6,6-octafluoro-, (E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



L17 ANSWER 15 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1990:405667 CAPLUS Full-text

DOCUMENT NUMBER: 113:5667

TITLE: Synthesis of (trichloromethyl)perfluoroalkanes  
[RFCCl<sub>3</sub>, RF=CnF<sub>2n+1</sub> (n = 4, 6, 8)]

AUTHOR(S): Grondin, J.; Blancou, H.; Commeyras, A.

CORPORATE SOURCE: Lab. Chim. Org., Univ. Sci. Tech. Languedoc, Montpellier, 34060, Fr.

SOURCE: Journal of Fluorine Chemistry (1989), 45(3), 349-54  
CODEN: JFLCAR; ISSN: 0022-1139

DOCUMENT TYPE: Journal

LANGUAGE: French

OTHER SOURCE(S): CASREACT 113:5667

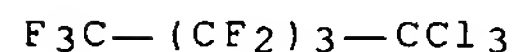
AB A new synthesis of the title compds. is accomplished by reaction of a perfluoroalkyl iodide (RFI) with carbon tetrachloride or bromotrichloromethane and zinc metal in a chlorinated solvent; the influence of the solvent is discussed.

IT 14434-07-2P 88639-56-9P 127441-60-5P  
RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of)

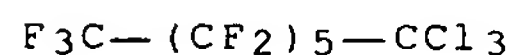
RN 14434-07-2 CAPLUS

CN Pentane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,5-nonafluoro- (9CI) (CA INDEX NAME)



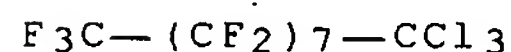
RN 88639-56-9 CAPLUS

CN Heptane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,7,7,7-tridecafluoro- (9CI) (CA INDEX NAME)



RN 127441-60-5 CAPLUS

CN Nonane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-heptadecafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 16 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1989:594050 CAPLUS Full-text

DOCUMENT NUMBER: 111:194050

TITLE: Reaction of phosphorus pentachloride with perhalo carbonyl containing compounds

AUTHOR(S): Chen, Loomis S.; Chen, Grace J.

CORPORATE SOURCE: Res. Inst., Univ. Dayton, Dayton, OH, 45469, USA

SOURCE: Journal of Fluorine Chemistry (1989), 42(3), 371-87  
CODEN: JFLCAR; ISSN: 0022-1139

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 111:194050

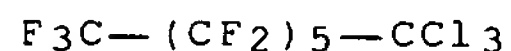
AB The reaction of  $\text{RfCO}(\text{CF}_2)_n\text{CF}_3$  ( $\text{Rf} = \text{CF}_3, \text{CF}_2\text{Cl}, \text{C}_3\text{F}_7$ ;  $n = 5, 7$ ) with  $\text{PCl}_5$  gave  $\text{RfCCl}_2(\text{CF}_2)_n\text{CF}_3$ . The diketone  $\text{C}_2\text{F}_5\text{CO}(\text{CF}_2)_3\text{COC}_2\text{F}_5$  gave  $\text{C}_2\text{F}_5\text{CCl}_2(\text{CF}_2)_3\text{CCl}_2\text{C}_2\text{F}_5$  and some  $\text{C}_2\text{F}_5\text{CO}(\text{CF}_2)_3\text{CCl}_2\text{C}_2\text{F}_5$ . 2,5-Dichloro-2,5-bis(pentafluoroethyl)-3,3,4,4-tetrafluorotetrahydrofuran was obtained from  $\text{C}_2\text{F}_5\text{CO}(\text{CF}_2)_2\text{COC}_2\text{F}_5$ .

IT 88639-56-9P

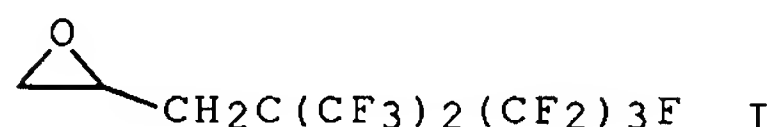
RL: FORM (Formation, nonpreparative); PREP (Preparation)  
(formation of, in reaction of perfluorooctanone with phosphorus pentachloride)

RN 88639-56-9 CAPLUS

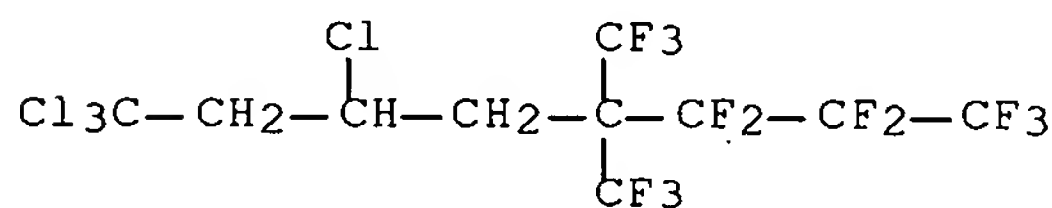
CN Heptane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,7,7,7-tridecafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 17 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1989:134681 CAPLUS Full-text  
 DOCUMENT NUMBER: 110:134681  
 TITLE: Synthetic utility of 3-(perfluoro-1,1-dimethylbutyl)-1-propene. Part I. Conversion to the epoxide and to alcohols  
 AUTHOR(S): Dmowski, Wojciech; Plenkiewicz, Halina; Porwisiak, Jacek  
 CORPORATE SOURCE: Inst. Org. Chem., Pol. Acad. Sci., Warsaw, 01-224, Pol.  
 SOURCE: Journal of Fluorine Chemistry (1988), 41(2), 191-212  
 CODEN: JFLCAR; ISSN: 0022-1139  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 110:134681  
 GI

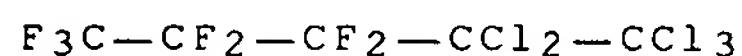


AB Various routes for the conversion of the title alkene to the corresponding epoxide and to alcs. were investigated. New perfluoroalkyl epoxide I and R(CH<sub>2</sub>)<sub>3</sub>OH, RCH<sub>2</sub>CHMeOH, RCH<sub>2</sub>CH(OH)CH<sub>2</sub>OMe, and RCH<sub>2</sub>CHBrCH<sub>2</sub>OH [R = F(CF<sub>3</sub>)<sub>3</sub>C(CF<sub>3</sub>)<sub>2</sub>] were prepared  
 IT 119285-90-4P  
 RL: SPN (Synthetic preparation); PREP (Preparation) (preparation of)  
 RN 119285-90-4 CAPLUS  
 CN Octane, 6,8,8,8-tetrachloro-1,1,1,2,2,3,3-heptafluoro-4,4-bis(trifluoromethyl)- (9CI) (CA INDEX NAME)

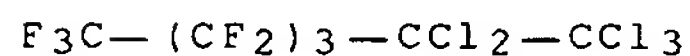


L17 ANSWER 18 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1988:509809 CAPLUS Full-text  
 DOCUMENT NUMBER: 109:109809  
 TITLE: A general facile preparation of F-alkylacetylenes  
 AUTHOR(S): Burton, Donald J.; Spawn, Terence D.  
 CORPORATE SOURCE: Dep. Chem., Univ. Iowa, Iowa City, IA, 52242, USA  
 SOURCE: Journal of Fluorine Chemistry (1988), 38(1), 119-23  
 CODEN: JFLCAR; ISSN: 0022-1139  
 DOCUMENT TYPE: Journal

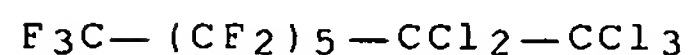
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 109:109809  
AB RCH:CH<sub>2</sub> (R = perfluoroalkyl) were exhaustively chlorinated under UV irradiation to give RCl<sub>2</sub>CCl<sub>3</sub> (same R) in high yields. Subsequent dechlorination with 3 equiv Zn readily gives RC.tplbond.CZnCl (I; same R), which are hydrolyzed with aqueous HCl to give RC.tplbond.CH (II; same R) in good yields. The methodol. is applicable to R groups of various chain lengths, and I formed as the reaction intermediates are also useful in the direct preparation of functionalized II.  
IT 116046-22-1P 116046-23-2P 116046-24-3P  
116046-25-4P 116046-26-5P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and dechlorination of, with zinc)  
RN 116046-22-1 CAPLUS  
CN Pentane, 1,1,1,2,2-pentachloro-3,3,4,4,5,5,5-heptafluoro- (9CI) (CA INDEX NAME)



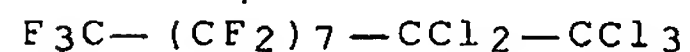
RN 116046-23-2 CAPLUS  
CN Hexane, 1,1,1,2,2-pentachloro-3,3,4,4,5,5,6,6,6-nonafluoro- (9CI) (CA INDEX NAME)



RN 116046-24-3 CAPLUS  
CN Octane, 1,1,1,2,2-pentachloro-3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluoro- (9CI) (CA INDEX NAME)



RN 116046-25-4 CAPLUS  
CN Decane, 1,1,1,2,2-pentachloro-3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluoro- (9CI) (CA INDEX NAME)



RN 116046-26-5 CAPLUS  
CN Dodecane, 1,1,1,2,2-pentachloro-3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,12,12,12-heneicosfluoro- (9CI) (CA INDEX NAME)

F<sub>3</sub>C—(CF<sub>2</sub>)<sub>9</sub>—CCl<sub>2</sub>—CCl<sub>3</sub>

L17 ANSWER 19 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1987:175741 CAPLUS Full-text

DOCUMENT NUMBER: 106:175741

TITLE: A new general synthesis route to 1,1,1-trihalopolyfluoroalkanes

AUTHOR(S): Eapen, K. C.; Eisentraut, K. J.; Ryan, M. T.; Tamborski, C.

CORPORATE SOURCE: Res. Inst., Univ. Dayton, Dayton, OH, 45469, USA

SOURCE: Journal of Fluorine Chemistry (1986), 31(4), 405-16

CODEN: JFLCAR; ISSN: 0022-1139

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 106:175741

AB 1,1,1-Trichloro- and tribromopolyfluoroalkanes were synthesized from perfluoroalkyl iodides and anhydrous AlCl<sub>3</sub> and AlBr<sub>3</sub>, resp. Thus, CF<sub>3</sub>(CF<sub>2</sub>)<sub>6</sub>CF<sub>2</sub>I was treated with AlCl<sub>3</sub> to give up to 55% CF<sub>3</sub>(CF<sub>2</sub>)<sub>6</sub>CCl<sub>3</sub>. The reaction is also applicable to perfluoroalkyl ether iodides, though varying amts. of byproducts are formed depending on the structure of the starting iodide.

IT 307-28-8P 88639-57-0P 107972-64-5P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 307-28-8 CAPLUS

CN Hexane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,6-undecafluoro- (9CI) (CA INDEX NAME)

Cl<sub>3</sub>C—(CF<sub>2</sub>)<sub>4</sub>—CF<sub>3</sub>

RN 88639-57-0 CAPLUS

CN Octane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluoro- (9CI) (CA INDEX NAME)

Cl<sub>3</sub>C—(CF<sub>2</sub>)<sub>6</sub>—CF<sub>3</sub>

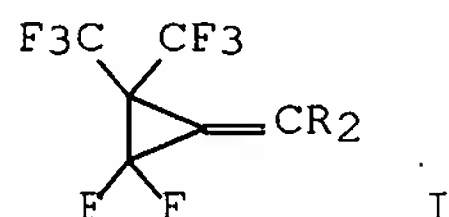
RN 107972-64-5 CAPLUS

CN Decane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-nonadecafluoro- (9CI) (CA INDEX NAME)

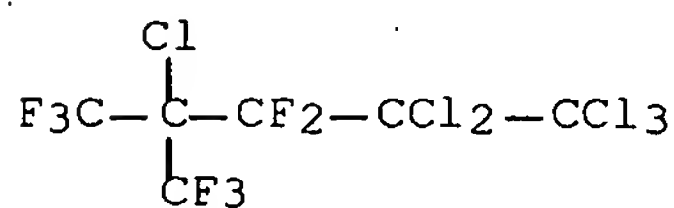
Cl<sub>3</sub>C—(CF<sub>2</sub>)<sub>8</sub>—CF<sub>3</sub>



L17 ANSWER 20 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1985:504583 CAPLUS Full-text  
 DOCUMENT NUMBER: 103:104583  
 TITLE: Fluoro olefin chemistry. Part 19. Reactions of some  
 halomethylenecyclopropanes  
 AUTHOR(S): Fields, Roy; Haszeldine, Robert N.; Pradhan, Prakash  
 R.; Bunegar, Michael J.  
 CORPORATE SOURCE: Chem. Dep., Univ. Manchester Inst. Sci. Technol.,  
 Manchester, M60 1QD, UK  
 SOURCE: Journal of Chemical Research, Synopses (1985), (4),  
 110-11  
 CODEN: JRPSDC; ISSN: 0308-2342  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 103:104583  
 GI



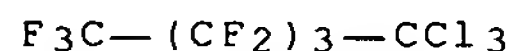
AB Reaction of the title compds. (I; R = F, Cl) (II and III, resp.) with Br or Cl  
 in vacuo at room temperature under normal laboratory lighting gave  
 (F3C)2CR1CF2CR1:CR2 (R = F, Cl, R1 = Br, Cl) in 82-99% yield. II reacted with  
 a variety of nucleophiles to give addition products; III did not react with  
 nucleophiles.  
 IT 97818-79-6P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 RN 97818-79-6 CAPLUS  
 CN Pentane, 1,1,1,2,2,4-hexachloro-3,3,5,5,5-pentafluoro-4-(trifluoromethyl)-  
 (9CI) (CA INDEX NAME)



L17 ANSWER 21 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1985:5722 CAPLUS Full-text  
 DOCUMENT NUMBER: 102:5722  
 TITLE: Fluoroalkylnitriles  
 PATENT ASSIGNEE(S): Daikin Kogyo Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 3 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

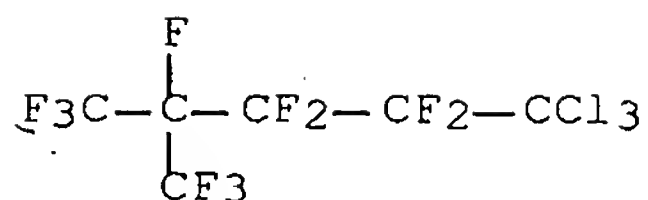
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 59118751	A	19840709	JP 1982-234259	19821224
PRIORITY APPLN. INFO.:			JP 1982-234259	19821224
AB	Fluoroalkylnitriles RCN (I, R = F3C, F3CCF2) were prepared by reaction of RCCl3 (II) with NH3. Thus, a 1:1 mol mixture of II (R = F3C) (III) and NH3 was passed over 23 + 750 mm quartz at 730° and 78.8 h-1 space velocity to give 64.7% I (R = F3C) with 100% reaction ratio of III.			
IT	14434-07-2 RL: RCT (Reactant); RACT (Reactant or reagent) (ammonolysis of)			
RN	14434-07-2 CAPLUS			
CN	Pentane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,5-nonafluoro- (9CI) (CA INDEX NAME)			



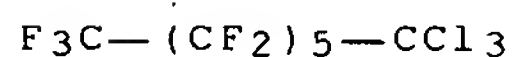
L17 ANSWER 22 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1984:67851 CAPLUS Full-text  
 DOCUMENT NUMBER: 100:67851  
 TITLE: Conversion of 1,1,1-trichloroperhaloalkanes into perhaloalkanoyl chlorides  
 INVENTOR(S): Anello, Louis G.; Eibeck, Richard E.; Robinson, Martin A.  
 PATENT ASSIGNEE(S): Allied Corp., USA  
 SOURCE: U.S., 5 pp. Cont.-in-part of U.S. 4,340,548.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4411843	A	19831025	US 1982-372576	19820429
US 4340548	A	19820720	US 1980-216033	19801215
EP 93793	A1	19831116	EP 1982-104229	19820514
EP 93793	B1	19850731		
R: DE, FR, GB, IT				
CA 1169877	A1	19840626	CA 1982-403670	19820525
PRIORITY APPLN. INFO.:			US 1980-216033	A2 19801215
			US 1982-372576	A 19820429

OTHER SOURCE(S): MARPAT 100:67851  
 AB Perhaloalkanoyl chlorides were prepared by contacting straight or branched chain C2-8 1,1,1-trichloroperhaloalkanes with SO3, stabilized SO3, or oleum in the presence of a halogen catalyst. Thus, treating 150 g CF3CCl3 with 145 g SO3 and 7.5 g Br gave 98% CF3COCl.  
 IT 88639-55-8 88639-56-9 88639-57-0  
 RL: PROC (Process)  
 (conversion of, to perfluoroalkanoyl chloride)  
 RN 88639-55-8 CAPLUS  
 CN Pentane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,5-octafluoro-4-(trifluoromethyl)- (9CI) (CA INDEX NAME)



RN 88639-56-9 CAPLUS  
 CN Heptane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,7,7,7-tridecafluoro- (9CI)  
 (CA INDEX NAME)



RN 88639-57-0 CAPLUS  
 CN Octane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluoro-  
 (9CI) (CA INDEX NAME)



IT 335-49-9  
 RL: PROC (Process)  
 (conversion of, to perfluorobutanoyl chloride)  
 RN 335-49-9 CAPLUS  
 CN Butane, 1,1,1-trichloro-2,2,3,3,4,4,4-heptafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 23 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1983:88765 CAPLUS Full-text

DOCUMENT NUMBER: 98:88765

TITLE: Reaction of hexafluoropropene with haloalkanes

AUTHOR(S): Haszeldine, Robert N.; Rowland, Ronald; Tipping,  
 Anthony E.; Tyrrell, Geoffrey

CORPORATE SOURCE: Dep. Chem., Univ. Manchester Inst. Sci. Technol.,  
 Manchester, M60 1QD, UK

SOURCE: Journal of Fluorine Chemistry (1982), 21(2), 253-9  
 CODEN: JFLCAR; ISSN: 0022-1139

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 98:88765

AB Insertion of hexafluoropropene under thermal and/or photochem. conditions  
 occurs into C-H bonds of MeCl, CH<sub>2</sub>Cl<sub>2</sub>, CHCl<sub>3</sub>, MeF, CH<sub>2</sub>F<sub>2</sub>, CHF<sub>2</sub>Cl, EtF, MeCHF<sub>2</sub>  
 and MeCF<sub>3</sub>, into C-H and C-Cl bonds of EtCl, MeCHFCl, PrCl, Me<sub>2</sub>CHCl, Me<sub>3</sub>CCl,

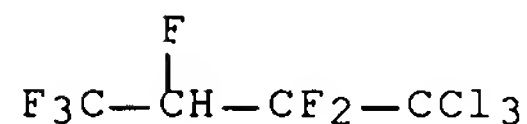
and Me<sub>2</sub>CHCH<sub>2</sub>Cl; and into C-Cl bonds of CH<sub>2</sub>:CHCH<sub>2</sub>Cl, ClCH<sub>2</sub>CH<sub>2</sub>Cl, MeCHCl<sub>2</sub>, ClCH<sub>2</sub>CHCl<sub>2</sub> and MeCCl<sub>3</sub>.

IT 58705-96-7P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 58705-96-7 CAPLUS

CN Butane, 1,1,1-trichloro-2,2,3,4,4,4-hexafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 24 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1980:620405 CAPLUS Full-text

DOCUMENT NUMBER: 93:220405

TITLE: Fluoroalkenyl-substituted cyclopropanecarboxylic acid esters, intermediates for them, and their use against insects and/or spiders

INVENTOR(S): Lantzsch, Reinhard; Hagemann, Hermann; Arlt, Dieter; Jautelat, Manfred; Hammann, Ingeborg; Behrenz, Wolfgang

PATENT ASSIGNEE(S): Bayer A.-G., Fed. Rep. Ger.

SOURCE: Eur. Pat. Appl., 48 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

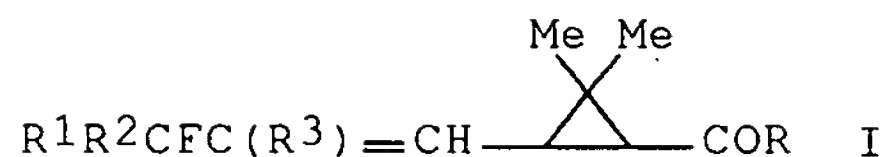
LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 9709	A1	19800416	EP 1979-103488	19790917
EP 9709	B1	19840215		
R: AT, BE, CH, DE, FR, GB, IT, NL, SE				
DE 2842541	A1	19800522	DE 1978-2842541	19780929
AT 6249	T	19840315	AT 1979-103488	19790917
CS 209935	B2	19811231	CS 1979-6378	19790921
BR 7906171	A	19800527	BR 1979-6171	19790926
SU 1071196	A3	19840130	SU 1979-2815597	19790926
HU 28114	A2	19831128	HU 1979-BA3855	19790927
DK 7904091	A	19800330	DK 1979-4091	19790928
AU 7951311	A	19800403	AU 1979-51311	19790928
AU 531782	B2	19830908		
JP 55049341	A	19800409	JP 1979-124275	19790928
ES 484574	A1	19800616	ES 1979-484574	19790928
ZA 7905166	A	19801029	ZA 1979-5166	19790928
DD 147907	A5	19810429	DD 1979-215891	19790928
CA 1141389	A1	19830215	CA 1979-336559	19790928
RO 78868	A1	19830803	RO 1979-98813	19790929
PRIORITY APPLN. INFO.:			DE 1978-2842541	A 19780929
			EP 1979-103488	A 19790917

GI

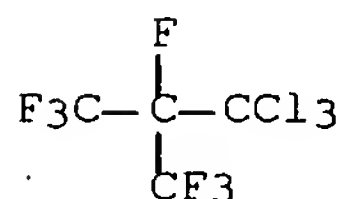


AB Title cyclopropanecarboxylates (I; R = substituted benzyloxy; R<sup>1</sup> = H, Cl, Br, Cl-4 alkyl and -haloalkyl; R<sup>2</sup> = Cl, Br, same alkyl; R<sup>3</sup> = Cl, Br, CF<sub>2</sub>, R<sup>1</sup>R<sup>2</sup>CF), useful as insecticides (no data), were prepared by treating cyclopropanecarbonyl chlorides with the appropriate benzyl alcs. Thus, treating 5.88 g I (R-R<sup>3</sup> = Cl) with 4.5 g 4-PhOC<sub>6</sub>H<sub>4</sub>CH(CN)OH in PhMe containing pyridine gave 9.1 g I [R = CH(CN)C<sub>6</sub>H<sub>4</sub>OPh-4; R<sup>1</sup>-R<sup>3</sup> = Cl].

IT 75531-36-1  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (addition reaction of, with Et dimethylpentenoate)

RN 75531-36-1 CAPLUS

CN Propane, 1,1,1,2,3,3,3-heptafluoro-2-(trichloromethyl)- (9CI) (CA INDEX NAME)



L17 ANSWER 25 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1976:578018 CAPLUS Full-text

DOCUMENT NUMBER: 85:178018

TITLE: Redox-catalyzed telomerization. VII. Synthesis and chemical transformation of telomers of chlorotrifluoroethylene and of 1,1,1-trichlorotrifluoroethane

AUTHOR(S): Boutevin, B.; Pietrasanta, Y.; Sideris, A.

CORPORATE SOURCE: Lab. Chim. Appl., Ec. Nat. Super. Chim., Montpellier, Fr.

SOURCE: European Polymer Journal (1976), 12(5), 283-8.  
 CODEN: EUPJAG; ISSN: 0014-3057

DOCUMENT TYPE: Journal

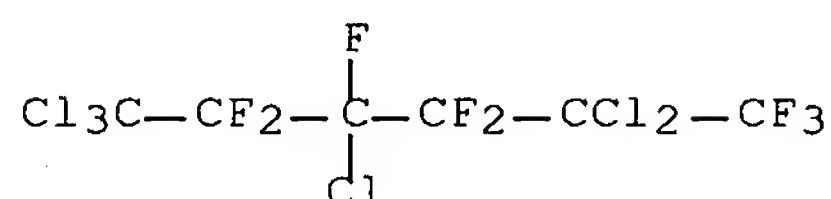
LANGUAGE: French

AB AlCl<sub>3</sub>-catalyzed isomerization of CCl<sub>2</sub>FCClF<sub>2</sub> [76-13-1] gave CF<sub>3</sub>CCl<sub>3</sub> [354-58-5] which underwent FeCl<sub>3</sub>-catalyzed telomerization with CClF:CF<sub>2</sub> [79-38-9] to give CF<sub>3</sub>CCl<sub>2</sub>(CF<sub>2</sub>CFCl)<sub>n</sub>Cl(I) n = 1-4. I (n = 1) [57504-35-5] and (I) (n = 2) [57504-36-6] treated with AlCl<sub>3</sub> in CCl<sub>4</sub> gave CF<sub>3</sub>CCl<sub>2</sub>CF<sub>2</sub>CCl<sub>3</sub> [375-41-7] and CF<sub>3</sub>CCl<sub>2</sub>(CF<sub>2</sub>CFCl)<sub>2</sub>Cl [57504-38-8] resp., and with 20% oleum gave CF<sub>3</sub>CCl<sub>2</sub>CF<sub>2</sub>CO<sub>2</sub>H and CF<sub>3</sub>CCl<sub>2</sub>CF<sub>2</sub>CFClCF<sub>2</sub>CO<sub>2</sub>H [57504-41-3], resp., esterification of which with EtOH gave CF<sub>3</sub>CCl<sub>2</sub>CF<sub>2</sub>CO<sub>2</sub>Et [60174-50-7] and CF<sub>3</sub>CCl<sub>2</sub>CF<sub>2</sub>CFClCF<sub>2</sub>CO<sub>2</sub>Et [60174-51-8]. The surface tensions of some of the products and of telomers from CClF:CF<sub>2</sub> and CCl<sub>4</sub> and compds. thereof were determined

IT 57504-38-8P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

RN 57504-38-8 CAPLUS

CN Hexane, 1,1,1,3,5,5-hexachloro-2,2,3,4,4,6,6,6-octafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 26 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1976:121095 CAPLUS Full-text

DOCUMENT NUMBER: 84:121095

TITLE: Insertion of hexafluoropropene at the aliphatic carbon-hydrogen bond of a functionally substituted hydrocarbon

INVENTOR(S): Haszeldine, Robert N.; Rowland, Ronald

PATENT ASSIGNEE(S): Pennwalt Corp., USA

SOURCE: U.S., 6 pp.  
CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3927129	A	19751216	US 1973-321162	19730105
GB 1430582	A	19760331	GB 1972-1989	19730405
PRIORITY APPLN. INFO.:			GB 1972-1989	A 19720114

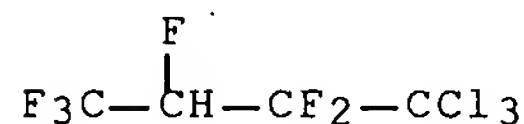
AB Fifteen fluorinated organic compds. were prepared by heating hexafluoropropene (I) at 260-380° with compds. free of acetylenic and terminal ethylenic unsatn., and containing at least one aliphatic C-H bond and at least one functional group inert under reaction conditions (e.g., ether, alc., sulfide, halide). Thus, I was heated with Me<sub>2</sub>O or MeCl at 280° for 4 days to give MeOCH<sub>2</sub>CF<sub>2</sub>CHF<sub>2</sub>CF<sub>3</sub> and ClCH<sub>2</sub>CF<sub>2</sub>CHF<sub>2</sub>CF<sub>3</sub>, resp. Three polymers, e.g., polyethylene terephthalate, were similarly heated with I to give polymers containing C<sub>3</sub>F<sub>6</sub> units.

IT 58705-96-7P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 58705-96-7 CAPLUS

CN Butane, 1,1,1-trichloro-2,2,3,4,4,4-hexafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 27 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1976:4386 CAPLUS Full-text

DOCUMENT NUMBER: 84:4386

TITLE: Synthesis and chemical transformation of



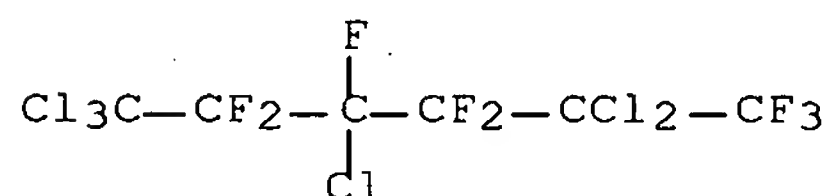
chlorotrifluoroethylene and 1,1,1-trichlorotrifluoroethane telomers

AUTHOR(S): Boutevin, Bernard; Pietrasanta, Yves; Sideris, Andre  
 CORPORATE SOURCE: Lab. Chim. Appl., Ec. Natl. Super. Chim. Montpellier, Montpellier, Fr.  
 SOURCE: Comptes Rendus des Seances de l'Academie des Sciences, Serie C: Sciences Chimiques (1975), 281(11), 405-8  
 CODEN: CHDCAQ; ISSN: 0567-6541  
 DOCUMENT TYPE: Journal  
 LANGUAGE: French

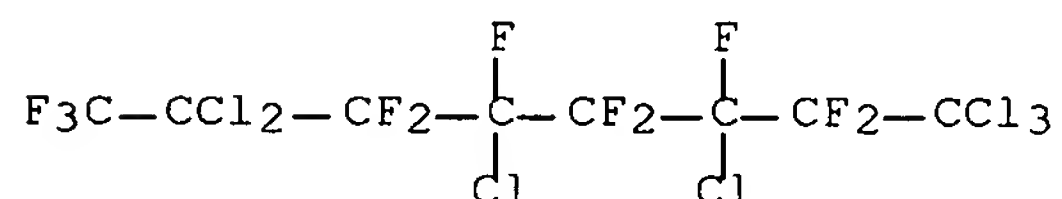
AB The telomerization of  $\text{ClCF:CF}_2$  with  $\text{CF}_3\text{CCl}_3$  and benzoin- $\text{FeCl}_3$  and benzoin- $\text{CuCl}_2$  gave  $\text{CF}_3\text{CCl}_2(\text{CF}_2\text{CFCl})_n\text{Cl}$  (I,  $n = 1, 2, 3$ ), which showed surfactant properties. Halogen interchange of the I with  $\text{AlCl}_3$  gave the resp.  $\text{CF}_3\text{CCl}_2(\text{CF}_2\text{CFCl})_n-1\text{CF}_2\text{CCl}_3$  which were hydrolyzed to  $\text{CF}_3\text{CCl}_2(\text{CF}_2\text{CFCl})_n-1\text{CF}_2\text{CO}_2\text{H}$  ( $n = 1, 2, 3$ ).

IT 57504-38-8P 57504-39-9P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent).  
 (preparation and hydrolysis of)

RN 57504-38-8 CAPLUS  
 CN Hexane, 1,1,1,3,5,5-hexachloro-2,2,3,4,4,6,6,6-octafluoro- (9CI) (CA INDEX NAME)



RN 57504-39-9 CAPLUS  
 CN Octane, 1,1,1,3,5,7,7-heptachloro-2,2,3,4,4,5,6,6,8,8,8-undecafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 28 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1971:509764 CAPLUS Full-text  
 DOCUMENT NUMBER: 75:109764

TITLE: Reactions of polyhalotertiary alcohols with a halogenating agents

AUTHOR(S): Dear, R. E. A.; Gilbert, E. E.; Murray, J. J.  
 CORPORATE SOURCE: Allied Chem. Corp., Morristown, NJ, USA  
 SOURCE: Tetrahedron (1971), 27(15), 3345-55  
 CODEN: TETRAB; ISSN: 0040-4020

DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Reactions of polyhalo tertiary alcohols,  $\text{CZ}_3\text{C}(\text{CF}_2\text{X})(\text{CF}_2\text{Y})\text{OH}$ . with a variety of reagents are described. Where Z is H and X and Y are H or F, reaction with

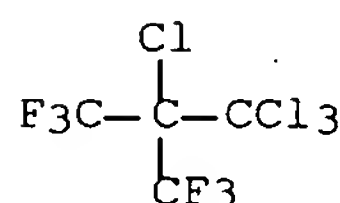
SF4 and PCl5 leads to olefin formation.  $CZ2:C(CF2X)(CF2Y)$ . If X and (or) Y are Cl, then PCl5 still gives the corresponding olefin, but SF4 causes a rapid Cl migration and the production of saturated compds. When Z is Cl and both X and Y are F, olefin formation results from reaction with PCl5, Ph3PBr2 and Ph3PI2. SF4 and Ph3PCl2 react differently, the former giving a rearranged saturated material and the latter an acid chloride. Related reactions are described and reaction mechanisms are proposed.

IT 32864-63-4P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 32864-63-4 CAPLUS

CN Propane, 1,1,1,2-tetrachloro-3,3,3-trifluoro-2-(trifluoromethyl)- (8CI)  
(CA INDEX NAME)



L17 ANSWER 29 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1966:490217 CAPLUS Full-text

DOCUMENT NUMBER: 65:90217

ORIGINAL REFERENCE NO.: 65:16851h, 16852a-e

TITLE: Methods of preparation and properties of organofluorine compounds. IV. N- $\alpha,\alpha$ -Dichlorononafluoroamylimino chloride of  $\omega,\omega,\omega$ -trichlorohexafluorovaleric acid

AUTHOR(S): Mazalov, S. A.; Sokolov, S. V.

CORPORATE SOURCE: Polytech. Inst., Sverdlovsk

SOURCE: Zhurnal Obshchei Khimii (1966), 36(7), 1330-7  
CODEN: ZOKHA4; ISSN: 0044-460X

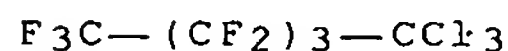
DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB cf. CA 63, 1712b; 65, 2140g. Perfluoro tertiary amines react with  $AlCl_3$  forming  $\alpha$ -Cl derivs. by displacement of  $\alpha$ -F atoms, with subsequent rearrangement into fluorinated alkylimino chlorides. Nucleophilic  $\alpha$ -C atoms. The reaction of 450 g. N-Perfluoroamylperfluoropiperidine in  $CCl_4$  with 400 g.  $AlCl_3$  in 5-6 hrs. at 75-100° gave after filtration a product b. 110-30° which treated with alc. KOH and filtered gave  $CCl_3C_4F_9$ , b. 119-21°  $d_{20} 1.7510$ ,  $n_{20D} 1.3380$ , and higher-b. fractions: b. 130-45°, containing polychlorofluoropentanes and  $\alpha,\alpha,\alpha$ -trichlorohexafluoropiperidine in an inseparable mixture; b. 250-60°, containing 63% of total products and yielding on redistn. a mixture (I) of  $CCl_3(CF_2)_3CCl_2N:CCl_2C_4F_9$  and  $CCl_3(CF_2)_3CCl_2N:CClC_4F_9$ , b. 255-7°,  $b_{10} 123-5^\circ$ , 1.8490, 1.3980. Heating  $CCl_3(CF_2)_3C(:NH)OH$  and  $CF_3(CF_2)_3CO_2H$  with a trace of  $H_2SO_4$  6 hrs at 150° gave perfluorovalerimide, m. 84-5°, b. 178-80°, and 53%  $CCl_3(CF_2)_3CONHC_4F_9$ , m. 137-7.5°, b. 220-50°, and a residue of trichlorohexafluorovalerimide, m. 172-3°. Heating trichlorohexafluorovalerimide and perfluorovalerimide with  $PCl_5$ , 15 hrs. at 150° gave 35% I, b. 254-6°. This and  $CH_2N_2$  gave 35%  $\omega,\omega,\omega$ -trichlorohexafluorobutyl chloromethyl ketone N- $\alpha,\alpha$ -dichlorononafluoroamylimine, b. 129-31°, 1.3980, -. I and concentrated  $H_2SO_4$  heated 10 hrs. at 150° and the mixture heated 5 hrs. with added  $H_2O$  gave 84%  $C_4F_9CO_2H$ ; Me ester b. 99-100°; amide m. 107-8°, b. 180-2°; the hydrolysis

above also gave  $\text{CCl}_3(\text{CF}_2)_3\text{CO}_2\text{H}$ ; amide m.  $137-8^\circ$ . Hydrolysis of I with  $\text{H}_2\text{SO}_4$  in the presence of  $\text{HgSO}_4\text{-Hg}_2\text{SO}_4$  at  $170-90^\circ$  gave Me esters of  $\text{C}_4\text{F}_9\text{CO}_2\text{H}$  and  $\text{CCl}_3(\text{CF}_2)_3\text{CO}_2\text{H}$  and  $(\text{CF}_2)_3(\text{CO}_2\text{H})_2$  (II) isolated best as the di-Et ester, b.  $205-7^\circ$ , 1.3590, -; diamide m.  $208-9^\circ$ .  $\text{CCl}_3(\text{CF}_2)_3\text{CO}_2\text{H}$  heated with 60% oleum in the presence of  $\text{HgSO}_4\text{-Hg}_2\text{SO}_4$  10 hrs. at  $80^\circ$  gave after treatment with MeOH 83% II di-Me ester, b.  $193-6^\circ$ , 1.3520, -. I heated 5 days with MeOH gave Me esters of  $\text{C}_4\text{F}_9\text{CO}_2\text{H}$  and  $\text{CCl}_3(\text{CF}_2)_3\text{CO}_2\text{H}$ . I and  $\text{PhNH}_2$  in  $\text{Et}_2\text{O}$  gave 70%  $\text{CCl}_3(\text{CF}_2)_3\text{C}(\text{NPh})\text{N}:\text{C}(\text{NPh})\text{C}_4\text{F}_9$ , m.  $100-1^\circ$ . I and  $\text{NH}_3$  in  $\text{Et}_2\text{O}$  with ice cooling gave 64%  $\text{CCl}_3(\text{CF}_2)_3\text{C}(:\text{NH})\text{N}:\text{C}(\text{NH}_2)\text{C}_4\text{F}_9$ , b7  $127-9^\circ$ , 1.3930, 1.7970. With excess  $\text{NH}_3$ , the product was a mixture of amidines of  $\text{C}_4\text{F}_9\text{CO}_2\text{H}$  and  $\text{CCl}_3(\text{CF}_2)_3\text{CO}_2\text{H}$ , m.  $63-5^\circ$ . I heated with  $\text{CoF}_3$  1 hr. at  $150^\circ$  gave Cl and 89%  $[\text{CCl}_3(\text{CF}_2)_3\text{CF bond triple dots bottom N bond triple dots bottom CFC}_4\text{F}_9]$  F (III), b.  $188-92^\circ$ , n20D 1.3320, d20 1.8280. I and dry HF with  $\text{SbCl}_5$  in an autoclave at room temperature 1 day gave 85%  $\text{CCl}_3(\text{CF}_2)_4\text{NHC}_5\text{F}_{11}$  b7  $85-90^\circ$ , n20D 1.3390, which with KF at  $140-50^\circ$  5 hrs. gave 93% III. I and  $\text{SbF}_5$  1 hr. at  $140-60^\circ$  gave after heating with alc. KOH 65% N-perfluoroamylperfluoropiperidine, b.  $145-8^\circ$ , d20 1.8710. N.M.R. and ir spectra are reported for the products above.

IT 14434-07-2P, Pentane, 1,1,1-trichlorononafluoro-  
 RL: PREP (Preparation)  
 (preparation of)  
 RN 14434-07-2 CAPLUS  
 CN Pentane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,5-nonafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 30 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1966:24680 CAPLUS Full-text

DOCUMENT NUMBER: 64:24680

ORIGINAL REFERENCE NO.: 64:4533e-f

TITLE: The compatibility of compacted boron carbide in stainless steel-alkali metal systems

AUTHOR(S): Lympres, C. J.; Slotnick, H.

SOURCE: U.S. At. Energy Comm. (1965), TIM-822, 9 pp.

DOCUMENT TYPE: Journal

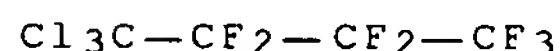
LANGUAGE: English

AB Specimens of B carbide were exposed to  $1000^\circ\text{F}$ . NaK-78 for extended times exceeding 5000 hrs. The carbide probably fragments in  $1000^\circ\text{F}$ . NaK-78. It was noted that the fragments could be retained by 20- and 160- $\mu$  sintered metal filters. Fragmentation is attributed to the reaction between K and free C. Although B and C transfer occurred, reaction between B carbide and type 316 in NaK-77 was not detrimental.

IT 335-49-9  
 (Derived from data in the 7th Collective Formula Index (1962-1966))

RN 335-49-9 CAPLUS

CN Butane, 1,1,1-trichloro-2,2,3,3,4,4,4-heptafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 31 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1966:24679 CAPLUS Full-text  
DOCUMENT NUMBER: 64:24679  
ORIGINAL REFERENCE NO.: 64:4533d-e  
TITLE: Degradation of C-816 and C-437 with fluorine  
AUTHOR(S): Massoth, F. E.; Kornet, F. A.  
CORPORATE SOURCE: Goodyear At. Corp., Portsmouth, OH  
SOURCE: U.S. At. Energy Comm. (1965), GAT-L-420, 5 pp.  
DOCUMENT TYPE: Journal  
LANGUAGE: English

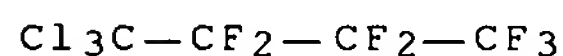
AB Complete degradation of C-437 (trichloroheptafluorobutane) has been achieved under Freon 114 degradation conditions (ibid. GAT-L 270, 8 pp.(1057)). The optimum reaction conditions for a 12-in.-long and 1-in. outside diameter Ni reactor were: F:C-437:N mole ratio 5:1:30, total flow, cc./min. 900, reaction temperature 510-550°, total pressure 750 torr, contact time 13 sec. C-816 (decafluoro-1,3-bis(trifluoromethyl)cyclohexane) was completely stable under similar conditions.

IT 335-49-9

(Derived from data in the 7th Collective Formula Index (1962-1966))

RN 335-49-9 CAPLUS

CN Butane, 1,1,1-trichloro-2,2,3,3,4,4,4-heptafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 32 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

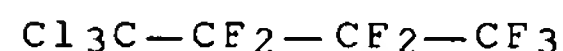
ACCESSION NUMBER: 1965:62872 CAPLUS Full-text  
DOCUMENT NUMBER: 62:62872  
ORIGINAL REFERENCE NO.: 62:11165b-c  
TITLE: Molar refractivity in fluorine-containing perhalo compounds  
AUTHOR(S): Fainberg, Arnold H.; Miller, William T., Jr.  
CORPORATE SOURCE: Cornell Univ., Ithaca, NY  
SOURCE: Journal of Organic Chemistry (1965), 30(3), 864-76  
CODEN: JOCEAH; ISSN: 0022-3263  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB A new set of atomic and group refractions is proposed for fluoro perhalo compds., based on refractivity data for 112 compds. carefully screened for evidence of purity. Molar refractions found for saturated perhaloalkanes are fitted to  $\pm 0.1\%$ , and for terminally unsatd. perhalo olefins to  $\pm 0.2\%$ . The set employs single, invariant values for C and for F, but multiple values, dependent on position, for the other halogens.

IT 335-49-9, Butane, 1,1,1-trichloroheptafluoro-  
(refraction of)

RN 335-49-9 CAPLUS

CN Butane, 1,1,1-trichloro-2,2,3,3,4,4,4-heptafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 33 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1965:62871 CAPLUS Full-text

DOCUMENT NUMBER: 62:62871  
 ORIGINAL REFERENCE NO.: 62:11164h,11165a-b  
 TITLE: Dissociative ionization of molecules by rare-gas ion impact  
 AUTHOR(S): Maier, William B., II  
 CORPORATE SOURCE: Univ. of Chicago  
 SOURCE: Journal of Chemical Physics (1965), 42(5), 1790-804  
 CODEN: JCPSA6; ISSN: 0021-9606  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Reactions of rare-gas ions with N<sub>2</sub>O, C<sub>2</sub>H<sub>2</sub>, C<sub>2</sub>H<sub>4</sub>, and D are studied and cross sections are given for primary-ion energies below 120 ev. These cross sections are compared for qual. differences. Most of the reactions have rather sharp onsets, and a semiempirical formula is fitted to the data near the apparent threshold energy. Information about bond energies is obtained from ion-mol. reactions. The data are consistent with: D(H<sub>2</sub>C:CH<sub>2</sub>) = 8.11 +0.10-0.18 ev., and with D(CH-H) = 3.99 +0.05-0.09 ev., although smaller values of D(H<sub>2</sub>C:CH<sub>2</sub>), and larger values of D(CH-H), cannot be entirely excluded. Ion-impact methods possess inherent advantages over electron-impact methods in certain cases; for example, the present data show that the electron-impact appearance potential of C<sub>2</sub>H<sub>3</sub><sup>+</sup> from C<sub>2</sub>H<sub>4</sub> is certainly 0.3 ev. and probably 0.6 ev. larger than the true threshold energy. The threshold behavior of an endothermic charge-transfer process Kr<sup>+</sup> + D<sub>2</sub> → D<sub>2</sub><sup>+</sup> + Kr is studied, and the cross section for this reaction is comparable in size to many of the other endothermic reactions observed, despite the fact that kinetic energy of the colliding particles must be converted into electronic energy for the reaction to proceed.

IT 335-49-9

(Derived from data in the 7th Collective Formula Index (1962-1966))

RN 335-49-9 CAPLUS

CN Butane, 1,1,1-trichloro-2,2,3,3,4,4,4-heptafluoro- (9CI) (CA INDEX NAME)

C13C—CF<sub>2</sub>—CF<sub>2</sub>—CF<sub>3</sub>

L17 ANSWER 34 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1965:62870 CAPLUS Full-text  
 DOCUMENT NUMBER: 62:62870  
 ORIGINAL REFERENCE NO.: 62:11164g-h  
 TITLE: Low-temperature properties of the interacting Bose system  
 AUTHOR(S): Shono, Naomi  
 CORPORATE SOURCE: Jogakuin Coll., Hiroshima, Japan  
 SOURCE: Progr. Theoret. Phys. (Kyoto) (1964), 31(April), 553-74  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB The low-temperature properties of the interacting Bose system at high d. are investigated under the random-phase approximation and the self-consistent Hartree approximation, based on the normal-mode analysis. To treat rigorously the temperature-dependent "depletion" effect of the particles in the zero-momentum level, a new approach is proposed. As a result, the critical temperature T<sub>c</sub> at which the zero-momentum particles disappear is determined. In the region below T<sub>c</sub>, the temperature-dependent energy spectrum of the quasi-particles, which has at the zero-temperature an intimate connection with that of Bogolyubov, is obtained; and the property of superfluidity which



disappears at Tc is discussed. The quasi-particles are transformed into the normal Bose particles at Tc, and the temperature-dependent energy spectrum of the normal particles in the region above Tc is determined. It is noteworthy that the phase transition of the 2nd order occurs at Tc.

IT 335-49-9

(Derived from data in the 7th Collective Formula Index (1962-1966))

RN 335-49-9 CAPLUS

CN Butane, 1,1,1-trichloro-2,2,3,3,4,4,4-heptafluoro- (9CI) (CA INDEX NAME)

Cl<sub>3</sub>C—CF<sub>2</sub>—CF<sub>2</sub>—CF<sub>3</sub>

L17 ANSWER 35 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1963:415076 CAPLUS Full-text

DOCUMENT NUMBER: 59:15076

ORIGINAL REFERENCE NO.: 59:2634g-h

TITLE: Chemistry of perfluoro ethers. IV. Structure of the monocyclic diether C<sub>8</sub>F<sub>16</sub>O<sub>2</sub>

AUTHOR(S): Tiers, George Van Dyke

CORPORATE SOURCE: Minnesota Mining & Manufg. Co., St. Paul

SOURCE: Journal of Organic Chemistry (1963), 28, 1403

CODEN: JOCEAH; ISSN: 0022-3263

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

GI For diagram(s), see printed CA Issue.

AB cf. CA 50, 9998f, 11814g. The monocyclic diether, C<sub>8</sub>F<sub>16</sub>O<sub>2</sub> (I) reported by Brice and Coon (CA 47, 9088a) was heated (0.046 mole) 14 hrs. at 200° with 0.135 mole AlCl<sub>3</sub> in a rocking autoclave and the isolated products separated by distillation gave 3 g. unchanged I, 1 g. C<sub>3</sub>F<sub>7</sub>COCl (fraction boiling slightly above 20°), 6.0 g. C<sub>3</sub>F<sub>7</sub>CCl<sub>3</sub>, CCl<sub>3</sub>CF<sub>2</sub>CF<sub>2</sub>COCl, b. 89-94°, and 3.4 g. CCl<sub>3</sub>CF<sub>2</sub>CF<sub>2</sub>COCl, b. 145-53°; amide, m. 126-7°. Only 2 structures were found consistent with the given observations of which the alternative formulation (II) seems to be the less probable. I(II) is believed to be the 1st reported example of a per-fluorinated acetal structure.

IT 335-49-9P, Butane, 1,1,1-trichloroheptafluoro-

RL: PREP (Preparation)

(preparation of)

RN 335-49-9 CAPLUS

CN Butane, 1,1,1-trichloro-2,2,3,3,4,4,4-heptafluoro- (9CI) (CA INDEX NAME)

Cl<sub>3</sub>C—CF<sub>2</sub>—CF<sub>2</sub>—CF<sub>3</sub>

L17 ANSWER 36 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1963:415075 CAPLUS Full-text

DOCUMENT NUMBER: 59:15075

ORIGINAL REFERENCE NO.: 59:2634d-g

TITLE: Contributions to the chemistry of thiophosphates. XIV. Thiophosphate-acidium salts from trialkyl phosphites

AUTHOR(S): Hilgetag, Guenter; Teichmann, Herbert

CORPORATE SOURCE: German Acad. Sci., Berlin-Adlershof

SOURCE: Chemische Berichte (1963), 96, 1465-9



CODEN: CHBEAM; ISSN: 0009-2940

DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable

- AB The ionic intermediate with quaternary P, postulated for the thiophosphate synthesis from trialkyl phosphites with sulfenyl chlorides can be scavenged by SbCl<sub>5</sub>; this reaction constitutes a simple synthesis of the tetra-alkylthiophosphate-acidium hexachloroantimonates. MeSCl (5.0 g.) in 80 cc. CH<sub>2</sub>Cl<sub>2</sub> treated dropwise at -78° under N with 17.94 g. SbCl<sub>5</sub> and 7.5 g. (MeO)<sub>3</sub>P each in 8 cc. CH<sub>2</sub>Cl<sub>2</sub>, kept overnight at -78°, and filtered gave 23.0 g. [(MeO)<sub>3</sub>PSMe][SbCl<sub>6</sub>], m. 126-8° (repptd. from CH<sub>2</sub>Cl<sub>2</sub> with Et<sub>2</sub>O). EtSCl (6.6 g.) in 10 cc. CH<sub>2</sub>Cl<sub>2</sub> treated with 20.4 g. SbCl<sub>5</sub> and 8.5 g. (MeO)<sub>3</sub>P each in 10 cc. CH<sub>2</sub>Cl<sub>2</sub>, kept 2 hrs. at room temperature, cooled to -78°, and filtered yielded 19.5 g. [(MeO)<sub>3</sub>PSEt][SbCl<sub>6</sub>] (I), m. 125-6° (decomposition); it polymerizes tetrahydrofuran to a glassy mass. EtSCl (6.0 g.) in 10 cc. CH<sub>2</sub>Cl<sub>2</sub> with 18.6 g. SbCl<sub>5</sub> and 10.3 g. (EtO)<sub>3</sub>P each in 10 cc. CH<sub>2</sub>Cl<sub>2</sub> kept several hrs. at room temperature, diluted with Et<sub>2</sub>O, and cooled gave 22.1 g. [(EtO)<sub>3</sub>PSEt][SbCl<sub>5</sub>] (II), crystalline powder, m. 109-13°; it polymerizes tetrahydrofuran. MeSCl (3.73 g.) in 40 cc. CH<sub>2</sub>Cl<sub>2</sub> treated with 13.45 g. SbCl<sub>5</sub> and 7.55 g. (EtO)<sub>3</sub>P each in 6 cc. CH<sub>2</sub>Cl<sub>2</sub>, kept overnight at -78°, and diluted with about 130 cc. Et<sub>2</sub>O precipitated 16.6 g. [(EtO)<sub>3</sub>PSMe][SbCl<sub>6</sub>], crystalline powder, m. 120-2° (decomposition) (repptd. from CH<sub>2</sub>Cl<sub>2</sub> with Et<sub>2</sub>O). The equivalent conductivities at concns. of 100, 166.6, 250, 500, and 2500 l./mole (given in this order) were determined in MeNO<sub>2</sub> for the following compds.: I, 78.70, 83.06, 86.37, 88.63, 96.70; II, 76.71, 82.46, 82.82, 84.38, 91.71.
- IT 335-49-9P, Butane, 1,1,1-trichloroheptafluoro-  
RL: PREP (Preparation)  
(preparation of)
- RN 335-49-9 CAPLUS
- CN Butane, 1,1,1-trichloro-2,2,3,3,4,4,4-heptafluoro- (9CI) (CA INDEX NAME)

Cl<sub>3</sub>C—CF<sub>2</sub>—CF<sub>2</sub>—CF<sub>3</sub>

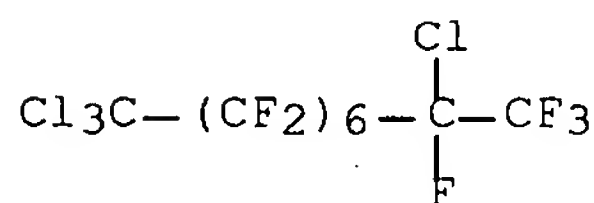
L17 ANSWER 37 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1962:73083 CAPLUS Full-text  
 DOCUMENT NUMBER: 56:73083  
 ORIGINAL REFERENCE NO.: 56:14066d-i,14067a-i,14068a-d  
 TITLE: Synthesis and some novel reactions of  
 $\alpha,\alpha$ -dichloroperfluoroalkyl esters  
 AUTHOR(S): Brace, Neal O.; McCormack, W. B.  
 CORPORATE SOURCE: E. I. Du Pont De Nemours and Co., Wilmington, DE  
 SOURCE: Journal of Organic Chemistry (1961), 26, 5091-9  
 CODEN: JOCEAH; ISSN: 0022-3263  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable

- AB Photochlorination of  $\alpha,\alpha$ -dihydroperfluoroalkyl perfluoroalkanoates at 100-40° gave 90% of the corresponding  $\alpha,\alpha$ -dichloro ester, distillable in vacuo. Thermal or catalytic cracking of the  $\alpha,\alpha$ -dichloro ester gave 2 perfluoro acid chlorides (same or different) in high yield. The  $\alpha,\alpha$ -dichloro ester reacted with H<sub>2</sub>O, amides, or esters. The  $\alpha,\alpha$ -dichloro ester was, in effect, a dimeric acid chloride. Pyrolysis of  $\alpha,\alpha$ -dichloroperfluoroalkyl trichloroacetates gave trichloroacetyl chloride (I) and a perfluoroalkanoyl chloride, while bis( $\alpha,\alpha$ -dichloroperfluoroalkyl) carbonates were cleaved in 2 steps to COCl<sub>2</sub> and 2 moles of the perfluoro acid chloride. These reactions provided a convenient

route to  $\omega$ -chloroperfluoroalkanoic acids and their carboxyl linked derivs. The general methods for the photochlorination of  $\alpha, \alpha, \omega$ -trihydroperfluoroalkanol esters was described. The compds. obtained were  $\text{Cl}(\text{CF}_2)_8\text{Cl}$  (II),  $\text{Cl}(\text{CF}_2)_8\text{CO}_2\text{CHCl}(\text{CF}_2)_8\text{Cl}$  (III), and  $\text{Cl}(\text{CF}_2)_8\text{CO}_2\text{CCl}_2(\text{CF}_2)_8\text{Cl}$  (IV).  $\text{Cl}$  (195 g.) was fed into 245.6 g.  $\text{H}(\text{CF}_2)_2\text{CO}_2\text{CH}_2(\text{CF}_2)_2\text{H}$  over 4-hrs. at  $115-28^\circ$ ; the  $\text{HCl}$  liberated was titrated with 2N  $\text{NaOH}$  (82% yield). A sample of the reaction product showed a  $\text{CO}$  band at  $5.47 \mu$ . The hydrolyzable  $\text{Cl}$  was 88% of theory.  $\text{Cl}$  (14 g.) was fed into the mixture again 0.5 hr. at  $116-23^\circ$  with 7 g. being used up. The total  $\text{Cl}$  was 145.5 g. The product weighed 311 g.  $\text{Cl}(\text{CF}_2)_4\text{CO}_2\text{CCl}_2(\text{CF}_2)_4\text{Cl}$  was obtained in 88% yield by distillation in a 3-ft. spinning band column, b11  $97-101^\circ$ , n25 D 1.348-1.354. In addition 13 g. forerun, b11  $46-58^\circ$ , and high-boiling cuts (3.4 g.), b11  $112-16^\circ$ , n25 D 1.3645, and 7.2 g., b11  $136-60^\circ$ , n25 D 1.3693, were obtained. Photochlorination of 32 g.  $\text{H}(\text{CF}_2)_8\text{CO}_2\text{CH}_2(\text{CF}_2)_8\text{H}$  9.5 hrs. gave  $\text{Cl}(\text{CF}_2)_8\text{COCl}$ , b14  $68-70^\circ$ , n25 D 1.3253, and 43% IV, b0.8  $126-7^\circ$ , n25 D 1.339.  $\text{Cl}$  (65 g.) bubbled in 2 hrs. through 192 g. 1,1,9-trihydroperfluorononyl 9-chloroperfluorononanoate (V) at  $110-105^\circ$  gave II, III and an isomer, and IV.  $\text{Cl}$  reacted at a rapid rate with 96 g. III during 15 min. to give IV. Reaction of 35 g.  $\text{Cl}$  with 348 g. V 3 hrs. at  $123-65^\circ$  gave 25% of the theoretical amount of  $\text{HCl}$ . No  $\text{Cl}$  passed through unchanged. The next day  $\text{Cl}$  was fed in again 6.5 hrs. at  $170-2^\circ$ ; a total of 110 g.  $\text{Cl}$  was used and 20 g. passed through. A total of 94% of the theory  $\text{HCl}$  was titrated. The product (370 g.) contained 22% II, 112 g.  $\text{Cl}(\text{CF}_2)_8\text{COCl}$  (which contained a small amount of 9-chloroperfluorononanoyl fluoride), b200  $137^\circ$ , n25 D 1.3252, and 3.7% 1,1,1,8-tetrachloroperfluorononane, b1.1  $63^\circ$ , m.  $48-51^\circ$ .  $\text{AcCl}$  (80 g.) added at  $20^\circ$  to 432 g.  $\text{H}(\text{CF}_2)_8\text{CH}_2\text{OH}$  [containing about 0.09 mole bis(4-hydroperfluorobutyl)carbinol] gave 463 g. 1,1,9-trihydroperfluorononyl acetate (VI) distilled, b20  $110^\circ$ . On photochlorination of 326 g. VI in a cell under a reflux condenser at  $-70^\circ$  treated 2 hrs. at  $100-15^\circ$  with 192 g.  $\text{Cl}$  fed in. and 8 hrs. at  $130-40^\circ$  gave the 240 g.  $\text{ClCO}_2\text{CCl}_2(\text{CF}_2)_8\text{Cl}$  (VII), b1.4  $115^\circ$ , n25 D 1.3764, m.  $30-3^\circ$ , 74 g.  $\text{Cl}(\text{CF}_2)_8$ ,  $\text{COCl}$  (containing small amount of  $\text{CCl}_3\text{CO}_2\text{H}$ ), and 18 g. I. The starting ester, bis(1,1,5-trihydroperfluoropentyl)oxalate (VIII), b22  $159^\circ$ , n25 D 1.3398, was prepared by ester exchange of  $\text{H}(\text{CF}_2)_4\text{CH}_2\text{OH}$  with  $(\text{CO}_2\text{Me})_2$ . Diester in 75% conversion, and a small amount of monomethyl ester were isolated. VIII (135 g.) treated with  $\text{Cl}$  as above gave 150.8 g. product, containing a mixture of dichloro esters, possibly 5,5'-dichloro, 1,5'-dichloro, and 1,1'-dichloro derivs. of VIII, 5-hydroperfluoropentanoyl chloride, b200  $50-3.5^\circ$ , n25 D 1.3148,  $\text{Cl}(\text{CF}_2)_2\text{COCl}$ , b200  $57-8.5^\circ$ , n25 D 1.3220, and an acid chloride mixture, b194  $128-9^\circ$ , n25 D 1.3631. A product (5.1 g.), b25  $88-90^\circ$ , n25 D 1.3669, was also obtained, corresponding to a mixed, monochlorinated half ester of oxalyl chloride. 1,1,7-Trihydroperfluoroheptyl perfluorobutyrate (IX) (154.9 g.) chlorinated by the above described method gave 152.4 g. product, mostly  $[\text{CF}_3(\text{CF}_2)_2\text{CO}_2\text{CH}(\text{CF}_2)_6\text{Cl}]_2$ . Carbonates of  $\alpha, \alpha, \omega$ -trihydroperfluoroalkanols were prepared by treating equivalent amts. of alc. and  $\text{C}_5\text{H}_5\text{N}$  with a slight excess of  $\text{COCl}_2$  at  $30-5^\circ$ , decomposing with ice, extracting with  $\text{CH}_2\text{Cl}_2$  or  $\text{CHCl}_3$ , washing, and distilling. The following  $[\text{H}(\text{CF}_2)_n\text{CH}_2\text{O}]_2\text{CO}$  were obtained (n, compound number, % yield, b.p./mm., n25 D and d20 given): 1, -, 19.2,  $85^\circ/18$ , 1.3368, 1.592; 2, X, 86.8,  $127^\circ/17$ , 1.3267, 1.718; 3, XI, 90.4,  $90-2^\circ/0.2$ , 1.3240, 1.793; 4, -, 81,  $143-8^\circ/1$  (m.  $50-3^\circ$ ), -, -. X (30.03 g.) irradiated with ultraviolet light at  $65-70^\circ$  with passage of  $\text{Cl}$  for 7 hrs. gave 40.61 g. crude product. The crude ester was distilled to give 5 fractions. Combination of the volatile fractions and redistn. of 14.1 g. gave 12 g.  $\text{Cl}(\text{CF}_2)_4\text{COCl}$ . Further distillation of the other fractions raised the yield of  $\text{Cl}(\text{CF}_2)_4\text{COCl}$  to 76.5%. XI (434 g.) similarly treated with  $\text{Cl}$  under irradiation gave 82 % bis(1,1,7-trichloroperfluoroheptyl) carbonate, m.  $47^\circ$ . This product was pyrolyzed by heating at  $165-225^\circ$  at atmospheric pressure to give 431.2 g.  $\text{Cl}(\text{CF}_2)_6\text{COCl}$ , b.  $142^\circ$ , n25 D 1.3267.  $\text{Cl}(\text{CF}_2)_4\text{CO}_2\text{CCl}_2(\text{CF}_2)_4\text{Cl}$  (119.5 g.) treated in 25 ml. with 25 g. alc. ( $\text{HCl}$  was rapidly evolved), and the product distilled gave 122 g. Et

5-chloroperfluoropentanoate, b. 146°, n<sub>25</sub> D 1.3347. 1,1,11-Trihydroperfluoroundecyl alc. (585.2 g.) with 224 g. Ac<sub>2</sub>O and 85 g. C<sub>5</sub>H<sub>5</sub>N gave 81% 1,1,11-trihydroperfluoroundecyl acetate (XII), b<sub>0.5</sub> 80-1°, m. 43-9°. Photochlorination of 513 g. XII in ultraviolet light gave the trichloro derivative, m. 143-8°. Addition of alc. at 135° under reflux for 13 hrs. and distillation of the product gave 434.7 g. Et 11-chloroperfluoroundecanoate (XIII), b<sub>2.8</sub> 94°. Cl(CF<sub>2</sub>)<sub>4</sub>CO<sub>2</sub>CCl<sub>2</sub>(CF<sub>2</sub>)<sub>4</sub>Cl (5 g.) and 3.88 g. 1,1,5-trihydroperfluoropentyl alc. (XIV), heated to 186° gave 3.25 g. Cl(CF<sub>2</sub>)<sub>4</sub>COCl. Further distillation gave 2.1 g. XIV, b<sub>20</sub> 57-8°, n<sub>25</sub> D 1.3168, 1.17 g. of an intermediate fraction containing alc. and an ester, and 1.16g. ClOFl<sub>10</sub>H<sub>3</sub>ClO<sub>2</sub>, b<sub>20</sub> 99°, n<sub>25</sub> D 1.3225. Heating the α,α-dichloro ester alone gave 10% cleavage in 3 hrs., 18% in 4 hrs., 27% in 4.5 hrs., and 36% in 5.25 hrs. under the above conditions; the bath at 200° caused 83% total cleavage in 2.5 hrs. of distillation 1,1-Dihydroperfluorobutanol (20 g.) and 30 g. Cl(CF<sub>2</sub>)<sub>4</sub>COCl heated 8 hrs. at 100-48° under total reflux gave 6.4 g. unchanged alc., and 14.8 g. 1,1-dihydroperfluorobutyl 5-chloroperfluoropentanoate (XV), b<sub>100</sub> 105-6°, n<sub>25</sub> D 1.3117. Photochlorination of 21 g. XV as above 5 hrs. at 120-40° gave 78% HCl and 18.7 g. 1,1-dichloroperfluorobutyl 5-chloropentanoate (XVI), b<sub>13</sub> 72°, n<sub>25</sub> D 1.335. Ester exchange of 10.6 g. XVI with 9.28 g. XIV occurred smoothly in 5.5 hrs. at 144-50° to give 4.5 g. H(CF<sub>2</sub>)<sub>4</sub>CH<sub>2</sub>OH (97%), an intermediate cut, and 8.6 g. ClOFl<sub>10</sub>H<sub>3</sub>ClO<sub>2</sub>. Analysis of the trap liquids showed that only perfluorobutyryl chloride was present in the traps. Not more than 10% of 1,1,5-trihydroperfluoropentyl perfluorobutyrate was formed in the reaction. Cl(CF<sub>2</sub>)<sub>4</sub>CO<sub>2</sub>CCl<sub>2</sub>(CF<sub>2</sub>)<sub>4</sub>Cl (5.98 g.) and 2.68 g. AgCN warmed to 214° and refluxing for 1 hr. gave 5.4 g. of the thermally cleaved product. Cl(CF<sub>2</sub>)<sub>4</sub>CO<sub>2</sub>(CF<sub>2</sub>)<sub>4</sub>Cl (5 g.), 1.7 g. NaF, and 5 cc. tetramethylene sulfone heated to 100° gave 76% yield of Cl(CF<sub>2</sub>)<sub>4</sub>COCl. Tetramethylene sulfone (80 g.), 47 g. Cl(CF<sub>2</sub>)<sub>8</sub>CO<sub>2</sub>CCl<sub>2</sub>(CF<sub>2</sub>)<sub>8</sub>Cl, and 8.6 g. NaF heated 3 hrs. at 150° and distilled gave 85% yield 9-chloroperfluorononanoyl fluoride, b<sub>200</sub> 112°, n<sub>25</sub> D 1.3040. Cl(CF<sub>2</sub>)<sub>6</sub>CO<sub>2</sub>CCl<sub>2</sub>(CF<sub>2</sub>)<sub>6</sub>Cl (50 g.) and 15.1 g. CoF<sub>2</sub> heated 4 hrs. at 150° gave 97% 7-chloroperfluoroheptanoyl fluoride. Ethylenimine (1.08 g.) and 2.55g. NEt<sub>3</sub> in 25 cc. C<sub>6</sub>H<sub>6</sub> treated in 0.5 hr. at 0-4° with 10 g. Cl(CF<sub>2</sub>)<sub>6</sub>CO<sub>2</sub>CCl<sub>2</sub>(CF<sub>2</sub>)<sub>6</sub>Cl, stirred 2 hrs. at 0-10°, and separation gave 8.3 g. Cl<sub>15</sub>F<sub>12</sub>H<sub>20</sub>N<sub>2</sub>Cl<sub>2</sub>O (XVII), m. 176-7° (decomposition). XVII was readily soluble in H<sub>2</sub>O and strongly surface-active. The C<sub>6</sub>H<sub>6</sub> filtrate gave 3 g. of a yellow oil. The tetrahydrofuran also gave 2.1 g. of a viscous oil probably polymeric material, postulated as a low-mol.-weight telomer having triethylammonium chloride and H end groups. Me perfluorooctanoate (30 g.) was photochlorinated 3 hrs. at 42° to give 69% trichloromethyl perfluorooctanoate, b<sub>5</sub> 60°, n<sub>25</sub> D 1.3351, and 2 g. perfluorooctanoyl chloride, b. 128-30°, n<sub>25</sub> D 1.3011. Cl(CF<sub>2</sub>)<sub>4</sub>COCl (25 g.) in 100 cc. CCl<sub>4</sub> stirred while 0.8 g. H<sub>2</sub>O added at 25°, the mixture heated to 42°, 5 cc. Et<sub>2</sub>O added, the solution left overnight, part of the solvents removed in 4 hrs., and the residue crystallized gave 23 g. 9-chloroperfluorononanoic acid (XVIII), m. 84-5° (CCl<sub>4</sub>). Cl(CF<sub>2</sub>)<sub>8</sub>CO<sub>2</sub>CCl<sub>2</sub>(CF<sub>2</sub>)<sub>8</sub>Cl (47.4 g.) and 1.7 g. H<sub>2</sub>O heated 1 hr. at 130-200° with evolution of HCl gave 29.8 g. XVIII and the remaining oil fractionated gave 7 g. Cl(CF<sub>2</sub>)<sub>4</sub>COCl and 1.8 g. impure XVIII. Cl(CF<sub>2</sub>)<sub>4</sub>CO<sub>2</sub>CCl<sub>2</sub>(CF<sub>2</sub>)<sub>4</sub>Cl (2 g.) in 10 cc. Et<sub>2</sub>O treated with dry NH<sub>3</sub>, evaporated, washed, and recrystd. gave 1.47 g. 5-chloroperfluoropentanamide (XIX). Cl(CF<sub>2</sub>)<sub>4</sub>COCl (1.38 g.) in 10 cc. C<sub>6</sub>H<sub>6</sub> saturated with NH<sub>3</sub> with the temperature rising to 50° gave 93% XIX. An equimolar mixture of 9-hydroperfluorononanoic acid and H(CF<sub>2</sub>)<sub>8</sub>CH<sub>2</sub>OH heated 6 hrs. at 160° gave H(CF<sub>2</sub>)<sub>8</sub>CO<sub>2</sub>CH<sub>2</sub>(CF<sub>2</sub>)<sub>8</sub>H, b. 151.5°, m. 46.5-7.0°. Cl(CF<sub>2</sub>)<sub>8</sub>COCl (110 g.) and 175 g. H(CF<sub>2</sub>)<sub>8</sub>CH<sub>2</sub>OH heated overnight at 156° gave 99% HCl; the product (287.2 g.) was fractionated to give 80 g. mixed alcs., including 190 g. 1,1,9-trihydroperfluorononyl 9-chloroperfluorononanoate (XX), b<sub>5</sub> 151-2°, m. 55°. Cl(CF<sub>2</sub>)<sub>8</sub>CO<sub>2</sub>CCl<sub>2</sub>(CF<sub>2</sub>)<sub>8</sub>Cl (166 g.) and 195 g. H(CF<sub>2</sub>)<sub>4</sub>CH<sub>2</sub>OH was heated 45 min. at 136-92° (no evolution of HCl), then heated overnight at 170° after addition of a small pellet of NaF and 10 drops NEt<sub>3</sub>. Distillation of the product gave 19% 9-chloroperfluorononanaldehyde, b<sub>19</sub> 76-7°, n<sub>25</sub> D 1.3165, and 234 g. XX.

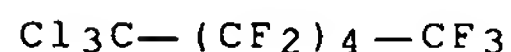
IT 754-90-5P, Nonane, 1,1,1,8-tetrachlorohexadecafluoro-  
 RL: PREP (Preparation)  
 (preparation of)  
 RN 754-90-5 CAPLUS  
 CN Nonane, 1,1,1,8-tetrachlorohexadecafluoro- (7CI, 8CI) (CA INDEX NAME)



L17 ANSWER 38 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1956:63414 CAPLUS Full-text  
 DOCUMENT NUMBER: 50:63414  
 ORIGINAL REFERENCE NO.: 50:11814g-i  
 TITLE: The chemistry of perfluoro ethers. IV. Steric and  
 polar displacements of nuclear spin resonances  
 AUTHOR(S): Van Dyke Tiers, Geo.  
 CORPORATE SOURCE: Minnesota Mining & Mfg. Co., St. Paul  
 SOURCE: Journal of the American Chemical Society (1956), 78,  
 2914-15  
 CODEN: JACSAT; ISSN: 0002-7863  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable

AB cf. C.A. 50, 9998f. Factors, apparently steric in origin and quite unrelated to the electronegativities of substituents, are of considerable importance in determining the positions of nuclear spin resonance (NSR) lines in fluorocarbon derivs. Pos.  $\delta^*$  values [ $\delta^* = 106(\text{HC}_4\text{F}_8 - \text{Hobs.})/\text{HC}_4\text{F}_8$ ] (i.e., less shielding of the F nucleus by its electron cloud) indicate greater electron-withdrawing power than is shown by the perfluorocyclobutyl group for the NSR spectra. The apparent electron-withdrawing power of the substituents X and Y in compds. of the type  $\text{XCF}_2\text{Y}$  (as judged by the NSR  $\delta^*$  value for the F atoms of the  $\text{CF}_2$  group) is in the following order of effectiveness:  $\text{F} \gg \text{CCl}_3, \text{CH}_2\text{I} > \text{COCl}, \text{CH}_2\text{Br} > \text{CF}_2\text{CCl}_3, \text{CH}_2\text{Cl} > \text{C}_2\text{F}_5, \text{C}_3\text{F}_7 > \text{CF}_3 > \text{CF}_2\text{H} > \text{H}$ . Addnl. observations indicate the following series of activities:  $\text{I} > \text{Br} > \text{Cl} > \text{F} > \text{CF}_2\text{I} > \text{CF}_2\text{Br} > \text{CF}_2\text{Cl} > \text{CF}_3$ . Conclusion: Net electron displacement away from F and H nuclei can be induced by repulsive interactions with neighboring groups in the mol.

IT 307-28-8, Hexane, 1,1,1-trichloroundecafluoro- 335-49-9,  
 Butane, 1,1,1-trichloroheptafluoro-  
 (magnetic resonance absorption by)  
 RN 307-28-8 CAPLUS  
 CN Hexane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,6-undecafluoro- (9CI) (CA INDEX NAME)



RN 335-49-9 CAPLUS  
 CN Butane, 1,1,1-trichloro-2,2,3,3,4,4,4-heptafluoro- (9CI) (CA INDEX NAME)



Cl<sub>3</sub>C—CF<sub>2</sub>—CF<sub>2</sub>—CF<sub>3</sub>

L17 ANSWER 39 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1956:52441 CAPLUS Full-text

DOCUMENT NUMBER: 50:52441

ORIGINAL REFERENCE NO.: 50:9998f-h

TITLE: The chemistry of perfluoro ethers. II. Ether cleavage with simultaneous replacement of  $\alpha$ -fluorine by chlorine

AUTHOR(S): Van Dyke Tiers, George

CORPORATE SOURCE: Minnesota Mining &amp; Mfg. Co., St. Paul

SOURCE: Journal of the American Chemical Society (1955), 77, 6703-4

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB cf. C.A. 50, 6444d. (C<sub>4</sub>F<sub>9</sub>)<sub>2</sub>O (20 g.) and 8.0 g. AlCl<sub>3</sub> heated 16 hrs. at 175° in a rocking autoclave, the mixture warmed and partially evacuated, and the volatile materials condensed in a liquid air trap gave 2.3 g. C<sub>3</sub>F<sub>7</sub>COCl (I), nD<sub>25</sub> 1.2880, which gave with NH<sub>3</sub> C<sub>3</sub>F<sub>7</sub>CONH<sub>2</sub>; the filtered reaction product distilled gave a mixture of 6.0 g. (C<sub>4</sub>F<sub>9</sub>)<sub>2</sub>O and 2.8 g. C<sub>3</sub>F<sub>7</sub>CCl<sub>3</sub> (II). A similar run during 13 hrs. at 150° gave 45% conversion with 8% yield of II and no I; some C<sub>2</sub>Cl<sub>6</sub> remained in the distillation residues. (C<sub>6</sub>F<sub>13</sub>)<sub>2</sub>O (110 g.) and 35 g. AlCl<sub>3</sub> heated 15 hrs. at 230°, and the filtered reaction mixture distilled gave 20.6 g. C<sub>5</sub>F<sub>11</sub>COCl (III), b. 87-93°, nD<sub>25</sub> 1.2992 (C<sub>5</sub>F<sub>11</sub>CONH<sub>2</sub> was obtained with NH<sub>3</sub>), 28.5 g. C<sub>5</sub>F<sub>11</sub>CCl<sub>3</sub> (IV), b. 143°, nD<sub>25</sub> 1.3383, and 16 g. unchanged (C<sub>6</sub>F<sub>13</sub>)<sub>2</sub>O. (C<sub>6</sub>F<sub>13</sub>)<sub>2</sub>O (25 g.) and 8 g. AlCl<sub>3</sub> gave similarly during 14 hrs. at 185° with 77% conversion 51% III and 63% IV.

IT 307-28-8P, Hexane, 1,1,1-trichloroundecafluoro- 335-49-9P

, Butane, 1,1,1-trichloroheptafluoro-

RL: PREP (Preparation)

(preparation of)

RN 307-28-8 CAPLUS

CN Hexane, 1,1,1-trichloro-2,2,3,3,4,4,5,5,6,6,6-undecafluoro- (9CI) (CA INDEX NAME)

Cl<sub>3</sub>C—(CF<sub>2</sub>)<sub>4</sub>—CF<sub>3</sub>

RN 335-49-9. CAPLUS

CN Butane, 1,1,1-trichloro-2,2,3,3,4,4,4-heptafluoro- (9CI) (CA INDEX NAME)

Cl<sub>3</sub>C—CF<sub>2</sub>—CF<sub>2</sub>—CF<sub>3</sub>

L17 ANSWER 40 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1956:19902 CAPLUS Full-text

DOCUMENT NUMBER: 50:19902  
 ORIGINAL REFERENCE NO.: 50:4057f-i,4058a  
 TITLE: Highly halogenated alkanes derived from  
 fluorine-containing alcohols  
 AUTHOR(S): McBee, E. T.; Campbell, D. H.; Roberts, C. W.  
 CORPORATE SOURCE: Purdue Univ., Lafayette, IN  
 SOURCE: Journal of the American Chemical Society (1955), 77,  
 3149-51  
 CODEN: JACSAT; ISSN: 0002-7863  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable

AB By the method of Tiers, et al. (C.A. 49, 1619e), were prepared the following  
 compds.: PhSO<sub>3</sub>CH<sub>2</sub>CF<sub>3</sub>, b<sub>1</sub> 91°, n<sub>D</sub>20 1.4582, d<sub>25</sub> 1.403; p-MeC<sub>6</sub>H<sub>4</sub>SO<sub>3</sub>CH<sub>2</sub> C<sub>2</sub>F<sub>5</sub>, m.  
 52.5-53°; PhSO<sub>3</sub>CH<sub>2</sub>C<sub>3</sub>F<sub>7</sub>, b<sub>1</sub> 108°, n<sub>D</sub>20 1.4240, d<sub>26.5</sub> 1.508. The appropriate  
 p-tolueneor benzenesulfonate refluxed 4 hrs. in (HOCH<sub>2</sub>CH<sub>2</sub>)<sub>2</sub>O with 50% excess K  
 halide, the mixture distilled, and the crude product washed twice with cold  
 H<sub>2</sub>O, dried with Drierite, and fractionated gave the following halides:  
 CF<sub>3</sub>CH<sub>2</sub>Br (I), 97.2%; C<sub>3</sub>F<sub>7</sub>CH<sub>2</sub>Cl (II), 95.5%; C<sub>3</sub>F<sub>7</sub>CH<sub>2</sub>Br, 91.2%; C<sub>3</sub>F<sub>7</sub>CH<sub>2</sub>I  
 (III), 82.7%; C<sub>2</sub>F<sub>5</sub>CH<sub>2</sub>Br, 81%; b. 46.5° n<sub>D</sub>20 1.3204, d<sub>25</sub> 1.756; C<sub>2</sub>F<sub>5</sub>CH<sub>2</sub>I, 81%,  
 b. 70.5°, n<sub>D</sub>20 1.3728, d<sub>25</sub> 2.038; C<sub>2</sub>F<sub>5</sub>CH<sub>2</sub>Cl (IV), 75%, b. 27.2°, n<sub>D</sub>20 1.292,  
 d<sub>25</sub> 1.395. II (177g.) passed at 250° with Cl through a 2 + 80-cm. Pyrex tube  
 and the condensate distilled gave 16 g. II; 51 g. C<sub>3</sub>F<sub>7</sub>CHCl<sub>2</sub>, b. 76.5°, n<sub>D</sub>20  
 1.3212, d<sub>25</sub> 1.612; and 127 g. C<sub>3</sub>F<sub>7</sub>CCl<sub>3</sub>, b. 96.5°. I (405 g.) gave similarly  
 at 220-40° 124 g. I, and 75 g. CF<sub>3</sub>CHBrCl<sub>2</sub>, b. 69.0°, 69.2°, n<sub>D</sub>20 1.3977, d<sub>20</sub>  
 1.950; an addnl. large fraction, b. 42-51°, could not be separated by  
 rectification on a 50-plate column. IV (54 g.) chlorinated similarly at 250°  
 gave 20 g. C<sub>2</sub>F<sub>5</sub>CHCl<sub>2</sub>, b. 45.5°, n<sub>D</sub>20 1.3196, d<sub>25</sub> 1.543; 35 g. unchanged IV,  
 and some C<sub>2</sub>F<sub>5</sub>CCl<sub>3</sub>, b. 70.5° n<sub>D</sub>20 1.3527, d<sub>20</sub> 1.637. III (256 g.) added during  
 2.5 hrs. to 80 g. Zn dust in 500 cc. refluxing glacial AcOH, the mixture  
 heated 2 hrs. with stirring, and the trap condensate distilled gave 126 g.  
 crude C<sub>2</sub>F<sub>5</sub>CF:CH<sub>2</sub>, b. 3-7°, which treated in 4 Carius tubes with 32 g. Cl  
 during 5 days at room temperature yielded 55 g. C<sub>2</sub>F<sub>5</sub>CClFCH<sub>2</sub>Cl, b. 72°, n<sub>D</sub>20  
 1.3386, d<sub>20</sub> 1.471. C<sub>3</sub>F<sub>7</sub>CCl<sub>3</sub> (249 g.), 155 g. SbF<sub>3</sub>, and 130 g. SbCl<sub>3</sub> heated 12  
 hrs. in a stainless steel autoclave to 210° and the mixture cooled, washed  
 with concentrated HCl, and then H<sub>2</sub>O, dried, and distilled yielded 168 g.  
 C<sub>3</sub>F<sub>7</sub>CCl<sub>2</sub>F, b. 62.8° n<sub>D</sub>20 1.3067, d<sub>25</sub> 1.633.  
 IT 335-49-9P, Butane, 1,1,1-trichloroheptafluoro-  
 RL: PREP (Preparation)  
 (preparation of)  
 RN 335-49-9 CAPLUS  
 CN Butane, 1,1,1-trichloro-2,2,3,3,4,4,4-heptafluoro- (9CI) (CA INDEX NAME)

Cl<sub>3</sub>C—CF<sub>2</sub>—CF<sub>2</sub>—CF<sub>3</sub>

L17 ANSWER 41 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1955:8061 CAPLUS Full-text  
 DOCUMENT NUMBER: 49:8061  
 ORIGINAL REFERENCE NO.: 49:1619e-i  
 TITLE: 1,1-Dihydrogenperfluoroalkyl halides  
 AUTHOR(S): Tiers, Geo. V. D.; Brown, Harvey A.; Reid, Thomas S.  
 CORPORATE SOURCE: Minnesota Mining and Manufg. Co., St. Paul, MN  
 SOURCE: Journal of the American Chemical Society (1953), 75,  
 5978-9  
 CODEN: JACSAT; ISSN: 0002-7863  
 DOCUMENT TYPE: Journal



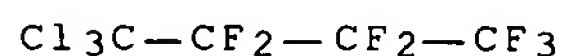
LANGUAGE: Unavailable  
 OTHER SOURCE(S): CASREACT 49:8061

AB A convenient, general method is described for the preparation of 1,1-dihydrogenperfluoroalkyl halides (I) from the corresponding alcs., via the p-toluenesulfonyl esters. Good yields were obtained without the use of special apparatus C3F7CH2OH (87 g.), 88 g. p-MeC6H4SO2Cl, and 150 cc. H2O treated during 0.5 hr. at 50-65° with 20 g. NaOH in 80 cc. H2O, the mixture stirred vigorously until neutral, cooled, extracted with Et2O, and the extract washed with concentrated NH4OH and then with H2O and evaporated on the steam bath yielded 131 g. (85%) p-MeC6H4SO3CH2C3F7 (II), m. 28-30°, nD25 1.4252; the analytical sample was recrystd. several times from petr. ether, m. 30-30.5°. Similarly were prepared: p-MeC6H4-SO3CH2CF3, 78%, m. 41°, nD25 1.4635; and p-MeC6H4SO3CH2C5F11, 71%, m. 54-5°. I (354.2 g.), 149.9 g. NaI, and 300 cc. diethylene glycol heated 2 hrs. at 150-220°, and the collected distillate (280 g.) washed several times with cold t H2O, dried over Drierite, and fractionated gave 270 g. (84.0%) C3F7CH2I, b740 91°, b760 92°, nD25 1.3603, d25 2.019. Similarly were prepared (% yield, b.p., nD25, and d25 given): CF3CH2I (III), 81, 55.0°, 1.3981, 2.142; C3F7CH2Cl, 78, 54°, 1.2906, 1.523; C3F7CH2Br, 70, 69.1°, 1.3166, 1.780; C5F11CH2Cl, 78, 103.6°, 1.2993, 1.651; C5F11CH2I, 87, 133°, 1.3500, 2.018. C3F7CH2Cl (19.8 g.) chlorinated by the method of Henne and Whaley (C.A. 36, 1009.4) gave about 15 g. (60%) pure C3F7CCl3, b732 95°, b760 96.2°, nD25 1.3441, d25 1.688, and a small amount of an unidentified higher boiling material. The CH stretching band is quite weak in the infrared spectra of the I, appearing as a doublet at 3.3-3.4 μ; at the liquid thickness used (about 0.007 mm.) only II gave a well defined CH stretching band. In contrast, a fairly strong band is found at 7.0 μ in each I spectrum; it appears to be due to a deformation of the CH2 group. The fairly strong band at 7.4 μ in each I spectrum, except II, is associated with the CF3 group attached to a saturated, H-free C atom.

IT 335-49-9P, Butane, 1,1,1-trichloroheptafluoro-  
 RL: PREP (Preparation)  
 (preparation of)

RN 335-49-9 CAPLUS

CN Butane, 1,1,1-trichloro-2,2,3,3,4,4,4-heptafluoro- (9CI) (CA INDEX NAME)



L17 ANSWER 42 OF 42 CAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1952:14342 CAPLUS Full-text

DOCUMENT NUMBER: 46:14342

ORIGINAL REFERENCE NO.: 46:2484h-i,2485a-d

TITLE: The preparation of hexafluoroacetone

AUTHOR(S): Henne, Albert L.; Shepard, John W.; Young, Evan J.

CORPORATE SOURCE: Ohio State Univ., Columbus

SOURCE: Journal of the American Chemical Society (1950), 72, 3577-9

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

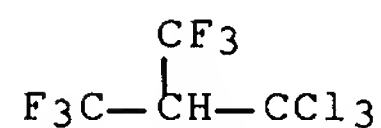
LANGUAGE: Unavailable

OTHER SOURCE(S): CASREACT 46:14342

AB Repeated chlorination of Me2C:CHCl, f.p. -78.7°, b. 158°, d420 1.3319, nD20 1.4980, and its chlorination products, CHCl2CMe:CH2, b. 105-28°, CH2ClCMe:CHCl, b. 128-35°, (CH2Cl)2C:CH2, b. 135-41°, and Me2CClCH2Cl, b. 141-7°, gives 43% CH2ClCMeClCHCl2, b20 78-85°. KOH in cold 1:1 MeOH-H2O gives the

lachrymator  $\text{CH}_2\text{ClCMe}:\text{CCl}_2$ , which chlorinates to  $\text{CH}_2\text{ClCMeClCCl}_3$  (I), f.p. 58-63°, b10 98-102°, b760 205-10°. Removal of HCl gives  $\text{CCl}_3\text{CMe}:\text{CHCl}$ , f.p. -70.0°, b. 174.8°, d420 1.4528, nD20 1.5129, easily hydrolyzed. With  $\text{SbF}_3$  this gives 70%  $\text{CF}_3\text{CMe}:\text{CHCl}$  (II), f.p. -120.3°, b. 46.4°, d420 1.2395, nD20 1.3489, A Rf 1.1. It is better to treat I with  $\text{SbF}_3$  and Cl at 165° and 10-11 atmospheric to give 40%  $\text{CF}_3\text{CMeClCH}_2\text{Cl}$  (III), b. 93.5°, d420 1.3899, nD20 1.3782, ARf 1.0, together with a mixture of II and  $\text{CF}_3\text{C}(\text{CH}_2\text{Cl}):\text{CH}_2$ , b. 64.1°, d420 1.2824, nD20 1.3520, ARf 0.9. A 2nd method of preparing III, more suitable for a small-scale synthesis, is from  $\text{MeMgCl}$  and  $\text{CF}_3\text{CO}_2\text{Et}$  to give 97% of the azeotropic mixture  $\text{EtOHCF}_3\text{C}(\text{OH})\text{Me}_2$ , b. 75-81°, which over  $\text{P}_2\text{O}_5$  at 130° gives 97%  $\text{CF}_3\text{CMe}:\text{CH}_2$ , b. 6.7°. Chlorination in the dark in the presence of a little  $\text{FeCl}_3$  at 0° gives III. III refluxed with alc. KOH gives II, which under the same conditions chlorinates to  $\text{CF}_3\text{CMeClCHCl}_2$ , b. 123.7°, d420 1.5201, nD20 1.4084, ARf 1.0. Removal of HCl gives  $\text{CF}_3\text{CMe}:\text{CCl}_2$  (IV), b. 88.4°, d420 1.4248, nD20 1.9947, ARf 1.1.  $\text{SbF}_3$  and Cl with HF at 55-130° and 10-20 atmospheric react with IV mixed with the residues from previous runs of this reaction to give  $(\text{CF}_3)_2\text{CHMe}$  (V), f.p. -106.7°, b. 21.5°, d40 1.3725, nD2.9 1.2717, A Rf 1.1, and some  $\text{CF}_3\text{CHMeCF}_2\text{Cl}$ , b. about 55°, and  $\text{CF}_3\text{CHMeCFCl}_2$ , b. about 70°, which are retreated. Chlorination of V goes slowly in ultraviolet light to give  $(\text{CF}_3)_2\text{CHCCl}_3$  (VI), b. 106.5-7.5°, d420 1.7095, nD20 1.3690, and  $[(\text{CF}_3)_2\text{CHCCl}_2]_2$ , m. 111.8-12.4°, which loses HCl to give  $[(\text{CF}_3)_2\text{C}:\text{CCl}]_2$ , b. 123°, d420 1.6838, nD20 1.3462, A Rf 1.2. Removal of HCl from VI with KOH in EtOH or MeOH-H<sub>2</sub>O below 10° gives 50%  $(\text{CF}_3)_2\text{C}:\text{CCl}_2$  (VII), f.p. -98.2°, b. 74.5°, d420 1.6429, nD20 1.3517, A Rf 1.2, and an unidentified compound, b. 127-30°, d420 1.4364, nD20 1.3696. In iso-PrOH only VII is formed. VI with KOH in H<sub>2</sub>O-(HOCH<sub>2</sub>CH<sub>2</sub>)<sub>2</sub>O gives 82.5% VII. VII with aqueous acid  $\text{KMnO}_4$  gives the hydrate of  $(\text{CF}_3)_2\text{CO}$ , which with  $\text{P}_2\text{O}_5$  gives the free ketone, b. -26°, and an unidentified liquid whose semicarbazone m. 190°. Properties are reported for  $\text{CClF}_2\text{CMeClCH}_2\text{Cl}$ , b. 131-2°, d420 1.4441, nD20 1.4326, A Rf 0.9;  $\text{CClF}_2\text{CMe}:\text{CHCl}$ , b. 86-7°, d420 1.3406, nD20 1.4023, A Rf 0.8;  $\text{CF}_3\text{CMeClCCl}_3$ , f.p. 115.6-16.4°, b. 148-9°;  $\text{CF}_3\text{CMeClCF}_2\text{Cl}$ , b. 75.3°, d420 1.5133, nD20 1.3440, A Rf 1.1;  $\text{CF}_3\text{CMe}:\text{CF}_2$ , b745 12.8-13.5°.

IT 382-23-0P, Propane, 1,1,1-trichloro-3,3,3-trifluoro-2-(trifluoromethyl)-  
 RL: PREP (Preparation)  
 (preparation of)  
 RN 382-23-0 CAPLUS  
 CN Propane, 1,1,1,3,3,3-hexafluoro-2-(trichloromethyl)- (9CI) (CA INDEX NAME)



=> d his nofil

(FILE 'HOME' ENTERED AT 16:32:43 ON 11 OCT 2007)

FILE 'REGISTRY' ENTERED AT 16:32:50 ON 11 OCT 2007

L1 STR  
 L2 0 SEA SSS SAM L1  
 D SAV  
 ACT CHUKA/A  
 -----  
 L3 STR

L4 93925 SEA SSS FUL L3  
-----

L5 0 SEA SUB=L4 SSS SAM L1

L6 10 SEA SUB=L4 SSS FUL L1

FILE 'CAPLUS' ENTERED AT 16:37:43 ON 11 OCT 2007

L7 18 SEA ABB=ON PLU=ON L6

FILE 'REGISTRY' ENTERED AT 16:39:22 ON 11 OCT 2007

L8 STR

L9 STR L8

DIS

L10 STR

L11 6 SEA SSS SAM L10

L12 121 SEA SSS FUL L10

L13 58 SEA ABB=ON PLU=ON L12 AND F>5

L14 13 SEA ABB=ON PLU=ON L13 AND (C/ELS AND H/ELS AND F/ELS AND  
CL/ELS AND 4/ELC.SUB)

L15 24 SEA ABB=ON PLU=ON L13 AND (C/ELS AND F/ELS AND CL/ELS AND  
3/ELC.SUB)

L16 37 SEA ABB=ON PLU=ON L14 OR L15

L\*\*\* DEL 37 S L16

FILE 'CAPLUS' ENTERED AT 16:49:15 ON 11 OCT 2007

L17 42 SEA ABB=ON PLU=ON L16

FILE 'CAPLUS' ENTERED AT 16:49:29 ON 11 OCT 2007

L18 0 SEA ABB=ON PLU=ON L7 AND L17

D QUE L7

D L7 IBIB ABS HITSTR TOT

D QUE L17

D L17 IBIB ABS HITSTR TOT